9.5 MODELING DOMAIN CONFIGURATION

The CALMET/CALPUFF computational domain consists of a uniform horizontal grid with a grid cell size of 3.0 kilometers in order to properly resolve spatial changes in flow fields and surface characteristics. In the vertical, a stretched grid was used with a fine resolution in the lower layers in order to resolve the mixed layer and a somewhat coarser resolution aloft. The ten vertical levels are centered at: 10, 30, 60, 120, 240, 460, 800, 1250, 1850, and 2600 meters for 1990 and 1992. The upper level zface height had to be lowered to 2552 for 1996 in order for CALPUFF to run since the maximum mixing height in the met data was 2552 meters.

9.6 METEOROLOGICAL MODELING

9.6.1 Refined Modeling Initial Guess Field

MM4/MM5 gridded meteorological data was used to define the initial guess field for the CALMET simulations. The MM4/MM5 data is available for the years 1990, 1992, and 1996.

9.6.1.1 Step 1 Field: Terrain Effects

In developing the Step 1 wind field, CALMET adjusts the initial guess field to reflect kinematic effects of the terrain, slope flows and blocking effects. Slope flows are a function of the local slope and altitude of the nearest crest. The crest is defined as the highest peak within a radius TERRAD around each grid point. The value of TERRAD was determined based on an analysis of the scale of the terrain. The Step 1 field produces a flow field consistent with the fine-scale CALMET terrain resolution (3.0 km).

9.6.1.2 Step 2 Field: Objective Analysis

In Step 2, observations are incorporated into the Step 1 wind field to produce a final wind field. Each observation site influences the final wind field within a radius of influence (parameters RMAX1 at the surface and RMAX2 aloft). Observations and Step 1 field are weighted by means of parameters R1 at the surface and R2 aloft: at a distance R1 from an observation site, the Step 1 wind field and the surface observations are weighted equally. In this application, relatively heavy weight is given to the Step 1 wind field because the observational stations are located only at the edge or outside the CALMET modeling domain. The MM5/MM4 grid points provide coverage throughout the modeling domain at a resolution of 80 km for the years 1990 and 1992 and 36 km for the year 1996.

9.7 CALPUFF COMPUTATIONAL DOMAIN AND RECEPTORS

The CALPUFF computational grid will be the same as the meteorological grid (i.e., 97 x 76 grid cells with a 3.0 km resolution). The modeling domain includes a buffer zone east and north of the source area and beyond the border of the Class I area. This minimizes edge effects and allows pollutants involved in flow reversals to be brought back into the Class I areas. The receptor grid consists of discrete receptors within the Class I area as received from the NPS by using the software package obtained from NPS called "NPS Convert Class I Areas".

9.8 MCNP BACKGROUND NITROGEN AND SULFUR DEPOSITION

The 2004 CastNet data was researched to determine the background nitrogen ("N") and sulfur ("S"). There was no wet and dry data and therefore, it was assumed that the wet deposition equaled the dry deposition. The 2004 CastNet data was as follows for MCNP:

NH_4 – 3.09 kg/ha/yr

NO_3 – 12.22 kg/ha/yr

N – 5.16 kg/ha/yr

SO_4 – 16.99 kg.ha/yr

The total S deposition was calculated as follows:

SO_4 = 16.99 X 2 = 33.98 kg/ha/yr SO4

33.98 kg/ha/yr X 32/64 = 16.99 kg/ha/yr S

The total N deposition was calculated as follows:

NH_4 = (3.09 X 2) X 14/18 = 4.81 kg/ha/yr N

NO_3 = (12.22 X 2) X 14/62 = 5.52 kg/ha/yr N

N = 5.16 X 2 = 10.32 kg/ha/yr N

Total N = 4.81 + 5.52 + 10.32 = 20.65 kg/ha/yr N deposition

This data was used to determine the percent change in N and S deposition that would be predicted by the model as a result of the CC.

9.9 PM $_{TOTAL}$ DETERMINATION

The PM_{total} impacts were determined by summing the maximum 24 hour and annual impacts of PMF, EC, SOA, and SO_4.

9.10 REFINED CALPUFF RESULTS

Table 9-5 shows the refined CALPUFF modeling results as compared to the Class I SILs.

Table 9-5: Class I Modeling Results

	PROPOSED CLASS I SIL	1990 MM4	1992 MM4	1996 MM4
VISIBILITY CHANGE	**RH_{max}**	95.00%	95.00%	95.00%
24 HR MAX	**5%**	2.32	3.25	4.33
>5%		0	0	0
>10%		0	0	0
$PM_{10\ total}$ IMPACT - ug/m3				
24 HR MAX	**0.3**	0.0404	0.0479	0.0793
ANNUAL MAX	**0.3**	0.0026	0.0027	0.0030
SO_2 IMPACT - ug/m3				
3 HR MAX	**1**	**0.2170**	**0.3392**	**0.3634**
24 HR MAX	**0.2**	**0.0703**	**0.0825**	**0.1252**
ANNUAL MAX	**0.1**	0.0044	0.0045	0.0052
NO_X IMPACT - ug/m3				
ANNUAL MAX	**0.1**	0.0055	0.0052	0.0061
TOTAL S - ug/m2/s		1.12E-05	9.08E-06	1.47E-05
ANNUAL MAX	**0.005 Kg/ha/yr**	**0.0035**	**0.0029**	**0.0046**
BACKGROUND KG/HA/YR	**16.99**			
PERCENT CHANGE	**%**	0.021%	0.017%	0.027%
TOTAL N - ug/m2/s		7.75E-06	6.49E-06	8.60E-06
ANNUAL MAX	**0.005 Kg/ha/yr**	**0.0024**	0.0020	**0.0027**
BACKGROUND KG/HA/YR	**20.65**			
PERCENT CHANGE	**%**	0.012%	0.010%	0.013%
PM10 TOTAL ANALYSIS				
PMF				
24 HR MAX		1.93E-02	2.42E-02	3.71E-02
ANNUAL MAX		1.37E-03	1.43E-03	1.58E-03
EC				
24 HR MAX		2.28E-04	2.86E-04	4.38E-04
ANNUAL MAX		1.62E-05	1.68E-05	1.86E-05
SOA				
24 HR MAX		4.02E-03	5.05E-03	7.73E-03
ANNUAL MAX		2.86E-04	2.97E-04	3.28E-04
SO_4				
24 HR MAX		1.69E-02	1.83E-02	3.41E-02
ANNUAL MAX		9.51E-04	9.99E-04	1.03E-03
$PM_{10(total)}$				
24 HR MAX		4.038E-02	4.786E-02	7.933E-02
ANNUAL MAX		2.63E-03	2.74E-03	2.95E-03

9.11 CONCLUSION

Based upon the modeling results depicted above, the emissions from CC will not equal or exceed the proposed Class I SILs. Therefore, no further analysis is required. The CALPUFF model input and output files are contained on the CD in Appendix I.

APPENDIX A - KYDAQ PERMIT APPLICATION FORMS & POLLUTANTS OF CONCERN TABLES

Index
Permit Application

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

Division for Air Quality
803 Schenkel Lane
Frankfort, Kentucky 40601

DEP7007AI
Administrative Information
Enter if known AFS Plant ID#
Agency Use Only
Date Received
Log#
Permit#

PERMIT APPLICATION

The completion of this form is required under Regulations 401 KAR 52:020, 52:030, and 52:040 pursuant to KRS 224. Applications are incomplete unless accompanied by copies of all plans, specifications, and drawings requested herein. Failure to supply information required or deemed necessary by the division to enable it to act upon the application shall result in denial of the permit and ensuing administrative and legal action. Applications shall be submitted in triplicate.

1) APPLICATION INFORMATION

Note: The applicant must be the owner or operator. (The owner/operator may be individual(s) or a corporation.)

Name: Cash Creek Generation, L.L.C.

Title: **Phone:** 502-357-9901

(If applicant is an individual)

Mailing Address: Company Cash Creek Generation, L.L.C. % Erora Group, LLC

Street or P.O. Box: 4350 Brownsboro Road, Suite 110

City: Louisville **State:** KY **Zip Code:** 40207

Is the applicant (check one): ☐ Owner ☐ Operator ☐ Owner & Operator ☒ Corporation/LLC* ☐ LP**

* If the applicant is a Corporation or a Limited Liability Corporation, submit a copy of the current Certificate of Authority from the Kentucky Secretary of State.

** If the applicant is a Limited Partnership, submit a copy of the current Certificate of Limited Partnership from the Kentucky Secretary of State.

Person to contact for technical information relating to application:

Name: Michael McInnis

Title: Manager **Phone:** 502-357-9901

2) OPERATOR INFORMATION

Note: The applicant must be the owner or operator. (The owner/operator may be individual(s) or a corporation.)

Name: Cash Creek Generation, L.L.C

Title: **Phone:** 502-357-9901

Mailing Address: Company Cash Creek Generation, L.L.C. % Erora Group, LLC

Street or P.O. Box: 4350 Brownsboro Road, Suite 110

City: Louisville **State:** KY **Zip Code:** 40207

DEP7007AI
(Continued)

3) TYPE OF PERMIT APPLICATION

For new sources that currently *do not* hold *any* air quality permits in Kentucky and are required to obtain a permit prior to construction pursuant to 401 KAR 52:020, 52:030, or 52:040.

☒ Initial Operating Permit (the permit will authorize both construction and operation of the new source)

Type of Source (*Check all that apply*): ☒ Major ☐ Conditional Major ☐ Synthetic Minor ☐ Minor

For existing sources that do not have a source-wide Operating Permit required by 401 KAR 52:020, 52:030, or 52:040.

Type of Source (*Check all that apply*): ☐ Major ☐ Conditional Major ☐ Synthetic Minor ☐ Minor

(*Check one only)*

☐ Initial Source-wide Operating Permit ☐ Construction of New Facilities at Existing Plant

☐ Construction of New Facilities at Existing Plant ☐ Modification of Existing Facilities at Existing Plant

☐ Other (explain) ____________________

For existing sources that currently have a source-wide Operating Permit.

Type of Source (*Check all that apply*): ☐ Major ☐ Conditional Major ☐ Synthetic Minor ☐ Minor

Current Operating Permit # ____________

☐ **Administrative Revision** (describe type of revision requested, e.g. name change): ____________

☐ **Permit Renewal** ☐ **Significant Revision** ☐ **Minor Revision**

☐ Addition of New Facilities ☐ Modification of Existing Facilities

For all construction and modification requiring a permit pursuant to 401 KAR 52:020, 52:030, or 52:040.

Proposed Date for Start of Construction or Modification: Q2 2007

Proposed date for Operation Start-up: Q2 2010

4) SOURCE INFORMATION

Source Name: **Cash Creek Generating Station**

Source Street Address: **Kentucky State Highway 1078**

City: **N/A** **Zip Code:** ________ **County:** **Henderson**

Primary Standard Industrial Classification (SIC) Category: Electric Services **Primary SIC #:** 4911

Property Area (Acres or Square Feet): 1,920 acres **Number of Employees:** 200 to 300

Description of Area Surrounding Source (*check one*)**:**

☐ Commercial Area ☐ Residential Area ☐ Industrial Area ☐ Industrial Park ☒ Rural Area ☐ Urban Area

Approximate Distance to Nearest Residence or Commercial Property: ¼ mile

UTM or Standard Location Coordinates: (*Include topographical map showing property boundaries*)

UTM Coordinates:	Zone 16	Horizontal (km)	463.5	Vertical (km)	4174.6	
Standard Coordinates:	Latitude N 37	Degrees	43	Minutes	10	Seconds
	Longitude W 87	Degrees	24	Minutes	50	Seconds

4) SOURCE INFROMATION (CONTINUED)

Is any part of the source located on federal land? ☐ Yes ☒ No

What other environmental permits or registrations does this source currently hold in Kentucky?

None

What other environmental permits or registrations does this source need to obtain in Kentucky?

KDEP: Water Withdrawal, Stormwater, KPDS, Special Waste Landfill

Army Corps of Engineers: Construction in Floodplain (water with drawl and Barge unloading)

Federal Aviation Agency/KAZC: Stack Height Notification

5) OTHER REQUIRED INFORMATION

Indicate the type(s) and number of forms attached as part of this application.

3	DEP7007A	Indirect Heat Exchanger, Turbine, Internal Combustion Engine	___	DEP7007R	Emission Reduction Credit
			___	DEP7007S	Service Stations
2	DEP7007B	Manufacturing or Processing Operations	___	DEP7007T	Metal Plating & Surface Treatment Operations
___	DEP7007C	Incinerators & Waste Burners	12	DEP7007V	Applicable Requirements & Compliance Activities
___	DEP7007F	Episode Standby Plan			
1	DEP7007J	Volatile Liquid Storage	3	DEP7007Y	Good Engineering Practice (GEP) Stack Height Determination
___	DEP7007K	Surface Coating or Printing Operations			
1	DEP7007L	Concrete, Asphalt, Coal, Aggregate, Feed, Corn, Flour, Grain, & Fertilizer	___	DEP7007AA	Compliance Schedule for Noncomplying Emission Units
1	DEP7007M	Metal Cleaning Degreasers	___	DEP7007BB	Certified Progress Report
10	DEP7007N	Emissions, Stacks, and Controls Information	1	DEP7007DD	Insignificant Activities
___	DEP7007P	Perchloroethylene Dry Cleaning Systems	1	DEP7007EE	Nox Budget Permit Application

Check other attachments that are part of this application.

Required Data		Supplemental Data	
☒	Map or Drawing Showing Location	☐	Stack Test Report
☒	Process Flow Diagram and Description	☒	Certificate of Authority from the Secretary of State (for Corporations and Limited Liability Companies)
☒	Site Plan Showing Stack Data and Locations	☐	Certificate of Limited Partnership from the Secretary of State (for Limited Partnerships)
☒	Emission Calculation Sheets	☐	Claim of Confidentiality (See 400 KAR 1:060)
☐	Material Safety Data Sheets (MSDS)	☐	Other (Specify) ____________________

Indicate if you expect to emit, in any amount, hazardous or toxic materials or compounds or such materials into the atmosphere from any operation or process at this location.

☐ Pollutants regulated under 401 KAR 57:002 (NESHAP) ☒ Pollutants listed in 401 KAR 63:060 (HAPS)

☐ Pollutants listed in 40 CFR 68 Subpart F [112(r) pollutants] ☐ Other

Has your company filed an emergency response plan with local and/or state and federal officials outlining the measures that would be implemented to mitigate an emergency release?

☐ **Yes** ☒ **No**

Check whether your company is seeking coverage under a permit shield. If "Yes" is checked, applicable requirements must be identified on Form DEP7007V. Identify any non-applicable requirements for which you are seeking permit shield coverage on a separate attachment to the application.

☒ **Yes** ☐ **No** ☒ **A list of non-applicable requirements is attached**

6) OWNER INFORMATION

Note: If the applicant is the owner, write "same as applicant" on the name line.

Name: Same as Applicant

Title: ______ **Phone:** ______

Mailing Address: Company ______

Street or P.O. Box: ______

City: ______ **State:** ______ **Zip Code:** ______

List names of owners and officers of your company who have an interest in the company of 5% or more.

Name	Position (owner, partner, president, CEO, treasurer, etc.)
Midwest Energy Development Company, L.L.C.	Member partner
The ERORA Group L.L.C.	Member partner

(attach another sheet if necessary)

7) SIGNATURE BLOCK

I, the undersigned, hereby certify under penalty of law, that I am a responsible official, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

BY: ______ (Authorized Signature) ______ (Date)

Mike McInnis as Manager for Cash Creek Generation L.L.C.
(Typed or Printed Name of Signatory)

Manager
(Title of Signatory)

Commonwealth of Kentucky
Trey Grayson
Secretary of State

Certificate of Authorization

I, Trey Grayson, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

CASH CREEK GENERATION, LLC

, a limited liability company organized under the laws of the state of Delaware, is authorized to transact business in the Commonwealth of Kentucky and received the authority to transact business in Kentucky on January 27, 2005.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that an application for certificate of withdrawal has not been filed; and that the most recent annual report required by KRS 275.190 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 12th day of July, 2005.

Certificate Number: 17243
Jurisdiction: Cash Creek Generation LLC
Visit http://apps.sos.ky.gov/business/obdb/certvalidate.aspx to validate the authenticity of this certificate.

COMMONWEALTH OF KENTUCKY
OFFICE OF SECRETARY OF STATE

Trey Grayson
Secretary of State
Commonwealth of Kentucky
17243/0604574

Emission Unit
Turbine1
HRSG 1

Commonwealth of Kentucky
Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

(*Submit copies of this form for each individual unit. Make additional copies as needed)*

DEP7007A

INDIRECT HEAT EXCHANGER, TURBINE, INTERNAL COMBUSTION ENGINE

Emission Point # 31
Emission Unit # HRSG 1

1) **Type of Unit (Make, Model, Etc.):** Combustion Turbine 1, GE7FA or equivalent equipped w/heat recovery steam generator (HRSG)

Date Installed: Construction start, Q2 2007 (estimated) **Cost of Unit:** To Be Determined
(Date unit was installed, modified or reconstructed, whichever is later.)

Where more than one unit is present, identify with Company's identification or code for this unit:
31 – CT/HRSG#1

2a) **Kind of Unit (Check one):**
1. Indirect Heat Exchanger ________
2. Gas Turbine for Electricity Generation X
3. Pipe Line Compressor Engines:
   ____ Gas Turbine
   ____ Reciprocating engines
   (a) 2-cycle lean burn ________
   (b) 4-cycle lean burn ________
   (c) 4-cycle rich burn ________
4. Industrial Engine ________

2b) **Rated Capacity: (Refer to manufacturer's specifications)**
1. Fuel input (mmBTU/hr): 1,721.5
2. Power output (hp): ________
   Power output (MW): approx. 197 (gross w/HRSG 557.3)

SECTION 1. FUEL

3) **Type of Primary Fuel** (*Check*):

____ A. Coal ____ B. Fuel Oil # (*Check one*) ____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6

____ C. Natural Gas ____ D. Propane ____ E. Butane ____ F. Wood ____ G. Gasoline

____ H. Diesel X I. Other (*specify*) Coal Derived Synthesis Gas

4) **Secondary Fuel** (*if any, specify type*): Natural Gas as backup for Start-Up

5) **Fuel Composition to Combustion Turbine**

Type	Percent Ash[a]	Percent Sulfur[b]	Heat Content Corresponding to: [c, d]	
	Maximum	Maximum	Maximum Ash	Maximum Sulfur
Primary	See Calculated Emissions	See Calculated Emissions	251 btu/cf	1,000 btu/cf
Secondary	See Calculated Emissions	See Calculated Emissions	251 btu/cf	1,000 btu/cf

a. As received basis. Proximate Analysis for Ash. (May use values in your fuel contract)
b. As received basis. Ultimate Analysis for Sulfur. (May use values in your fuel contract)
c. Higher Heating Value, BTU/Unit. (May use values in your fuel contract)
Suggested units are: Pounds for solid fuel, gallon for liquid fuels, and cu. Ft. for gaseous fuels. If other units are used, please specify.

6) **Maximum Annual Fuel Usage Rate** (***please specify units)*:*** 900 hours/year natural gas

7) **Fuel Source or supplier:** Syngas produced in the IGCC facility; natural gas from pipeline

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

8) MAXIMUM OPERATING SCHEDULE FOR THIS UNIT*

24 hours/day   7 days/week   52 weeks/year

9) If this unit is multipurpose, describe percent in each use category:

Space Heat ______% Process Heat ______ % Power 100 %

10) Control options for turbine/IC engine (C*heck*)

__ (1) Water Injection
__ (2) Steam Injection
__ (3) Selective Catalytic Reduction (SCR)
__ (3) Non-Selective Catalytic Reduction (NSCR)
__ (5) Combustion Modification)
X (5) Other (*Specify*) Diluent Nitrogen Injection IGCC Process
Syngas process reduces PM, PM10 and SO2, Acid Gas, Hg and other organics & Metals

IMPORTANT: Form DEP7007N must also be completed for this unit.

SECTION II COMPLETE ONLY FOR INDIRECT HEAT EXCHANGERS

11) Coal-Fired Units

______ Pulverized Coal Fired:

__ Dry Bottom __ Wall Fired
__ Wet Bottom __ Tangentially Fired

Fly Ash Rejection:

☐ Yes ☐ No

______ Cyclone Furnace

______ Spreader Stoker

______ Overfeed Stoker

______ Underfeed Stoker

______ Fluidized Bed Combustor:
______ Circulating Bed
______ Bubbling Bed

______ Hand-fed

______ Other (*specify*) ______

12) Oil-Fired Unit

______ Tangentially (Corner) Fired

______ Horizontally Opposed (Normal) Fired

13) Wood-Fired Unit

Fly-Ash Reinjection: ☐ Yes ☐ No

______ Dutch Oven/Fuel Cell Oven ______ Stoker ______ Suspension Firing

______ Fluidized Bed Combustion (FBC)

14) Natural Gas-Fired Units

__ Low NO_x Burners: ☐ Yes ☐ No

__ Flue Gas Recirculation: ☐ Yes ☐ No

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

15) **Combustion Air** **Draft:** ________ **Natural** ________ **Induced**

Forced Pressure ____________ **lbs/sq. in.**

Percent excess air (air supplied in excess of theoretical air) ___________ **%**

SECTION III

16) **Additional Stack Data**

A. **Are sampling ports provided?** ☒ **Yes** ☐ **No**
B. **If yes, are they located in accordance with 40 CFR 60*?** ☒ **Yes** ☐ **No**
C. **List other units vented to this stack** **none**

17) **Attach manufacturer's specifications and guaranteed performance data for the indirect heat exchanger. Include information concerning fuel input, burners and combustion chamber dimensions.**

18) **Describe fuel transport, storage methods and related dust control measures, including ash disposal and control.**

The coal is delivered by conveyor belt or barge. The syngas is delivered by pipe from the gasifier. The natural gas is delivered by pipeline.

*Applicant assumes responsibility for proper location of sampling ports if the Division for Air Quality requires a compliance demonstration stack test.

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]		Permitted Operating Parameters		
		Hourly Operating Rate (MMBtu/hr)	Annual Operating Hours (hrs/yr)	Hourly Operating Rate (MMBtu/hr)	Annual Operating Rate (MMBtu/yr)	Annual Operating Hours (hrs/yr)
31	HRSG 1					
	CT - Combustion Turbine / HRSG Stack	1,721.5 MMBtu/hr	8,760	1721.5	15,080,340	8,760
	Emission Unit(s) Controlled:			MMBtu/hr	MMBtu/yr	
					Nat.Gas use only	900

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors			Control Equipment		Hourly (lb/hr) Emissions			Annual (tons/yr) Emissions		
	Pollutant	Emission Factor (lb/MMbtu)	Emission Factor Basis	Control Equipment Association	Pollutant Overall Efficiency (%)	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable
31	PM/PM10	0.0070	BACT	Liquid scrubbing	99.90%	12,050.50	12.05		52,781.2	52.8	
	SO_2	0.0430	BACT	Carbon bed and Acid Gas Removal	99.25%	9,869.93	74.02		43,230.3	324.2	
	CO - syngas	0.0360	BACT			61.97	61.97		271.4	271.4	
	CO - nat.gas	0.0530	BACT			91.24	91.24		41.1	41.1	
	Nox - syngas	0.0580	BACT	Nitrogen Dilution		99.85	99.85		437.3	437.3	
	Nox - nat.gas	0.0870	BACT			149.77	149.77		67.4	67.4	
	VOC	0.0060	BACT			10.33	10.33		45.2	45.2	
	H2SO4	0.0049	BACT	Acid Gas Removal		8.44	8.44		36.9	36.9	
	**										

**** REFER TO ATTACHED POC TABLES IN CHAPTER 5 FOR ADDITIONAL POLLUTANTS**

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^{o}F)	Exit Velocity (ft/sec)
31	Unit 1 HRSG 1	200	15.09	200	4,174,755.22	463,601.63	INI	913,829	300.20	109.58
HRSG1										

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Combustion Power Generating Units:					
31	HRSG 1	PM/PM10	401 KAR 51:017	20% Opacity	Periodic Visual Emission Surveys
			40 CFR 64	0.007 lb/MMBtu (BACT)	Initial Performance test & additional testing every 5 years
		CO	401 KAR 60:005	Syn-Gas - 0.036 lb/MMBtu (BACT)	Initial Performance test
			401 KAR 51:017	Natural Gas - 0.053 lb/MMBtu @ 900 hrs/yr	
		NOX	40 CFR 60 Subpart GG	Syn-Gas - 0.058 lb/MMBtu (BACT)	Continuous Emission Monitor
			401 KAR 51:017	Natural Gas -0.087 lb/MMBtu (BACT)	
		SO2	40 CFR 60 Subpart GG	0.043 lb/MMBtu (BACT	Continuous Emission Monitor
			401 KAR 51:017		
		VOC	401 KAR 51:017	0.006 lb/MMBtu (BACT)	Initial Performance test
		H2SO4	40 CFR 64	0.0049 lb/MMBtu (BACT)	Initial Performance test & records of fuel throughput
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8) *
Combustion Power Generating Units:					
31	HRSG 1	PM/PM10	401 KAR 51:017	Opacity	Periodic visual emissions surveys and annual Method 9 test
			40 CFR 64	PM/PM10	Initial performance test
		CO	401 KAR 60:005	CO	None
			401 KAR 51:017		
		NOX	40 CFR 60 Subpart GG	NOX	Continuous Emission Monitor per 40 CFR 60.344(e) , 40 CFR 75 Subpart B, 40 CFR 60 Appendix B & 401 KAR 59.005
			401 KAR 51:017		
		SO2	40 CFR 60 Subpart GG	SO2	Continuous Emission Monitor per 40 CFR 75.10 , 40 CFR 60 Appendix B & 401 KAR 59.005
			401 KAR 51:017		
		VOC	401 KAR 51:017	VOC	Quantity of Fuel Combusted
		H2SO4	40 CFR 64	H2SO4	Quantity of Fuel Combusted
			401 KAR 51:017		

* When more than one standard applies, compliance with the most stringent will demonstrate compliance with all standards

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Combustion Power Generating Units:					
31	HRSG 1	PM/PM10	401 KAR 51:017	Opacity	All Method 9 Tests and Visual Emission Surveys shall be maintained on site
			40 CFR 64	PM/PM10	Test results shall be maintained on site
		CO	401 KAR 60:005	CO	None
			401 KAR 51:017		
		NOX	40 CFR 60 Subpart GG	NOx	Continuous Emission Monitor per 40 CFR 75 Subpart F
			401 KAR 51:017		
		SO2	40 CFR 60 Subpart GG	SO2	Continuous Emission Monitor per 40 CFR 75 Subpart F
			401 KAR 51:017		
		VOC	401 KAR 51:017	VOC	None
		H2SO4	40 CFR 64	H2SO4	Test results shall be maintained on site
			401 KAR 51:017		Meter readings of quantity of fuel combusted

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Combustion Power Generating Units:					
31	HRSG 1	PM/PM10	401 KAR 51:017	Opacity	
			40 CFR 64	PM/PM10	Calculated Annual Emissions
		CO	401 KAR 60:005		
			401 KAR 51:017	CO	Calculated Annual Emissions
		NOX	40 CFR 60 Subpart GG		
			401 KAR 51:017	NOx	Continuous Emission Monitor per 40 CFR 75 Subpart G
		SO2	40 CFR 60 Subpart GG		
			401 KAR 51:017	SO2	Continuous Emission Monitor per 40 CFR 75 Subpart G
		VOC	401 KAR 51:017	VOC	Calculated Annual Emissions
		H2SO4	40 CFR 64	H2SO4	Calculated Annual Emissions
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Combustion Power Generating Units:					
31	HRSG 1	PM/PM10	401 KAR 51:017	Opacity	Initial Performance test and once every 5 years thereafter , Method 9
			40 CFR 64	PM/PM10	Initial Performance test and once every 5 years thereafter , Method 1 through 5
		CO	401 KAR 60:005	CO	Initial Performance Test, Method 1 through 4 and Method 10
			401 KAR 51:017		
		NOX	40 CFR 60 Subpart GG	NOx	Continuous Emission Monitor per 40 CFR 75 Subpart I
			401 KAR 51:017		Initial Performance Test
		SO2	40 CFR 60 Subpart GG	SO2	Continuous Emission Monitor per 40 CFR 75 Subpart I
			401 KAR 51:017		Initial Performance Test
		VOC	401 KAR 51:017	VOC	Initial Performance Test, Method 1 through 4 and Method 25A
		H2SO4	40 CFR 64	H2SO4	Initial Performance Test, Method 1 through 4 and Method 8
			401 KAR 51:017		

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007Y
Good Engineering Practice (GEP) Stack Height Determination

Complete only for stacks 65m or taller

EMISSIONS UNIT # N/A
EMISSIONS POINT # N/A

EXHAUST POINT INFORMATION		
1) Flow diagram designation of exhaust point N/A		
2) Description of exhaust point (stack, vent, roof monitor, indoors, etc.). If the exhaust point discharges indoors, complete items 3 through 11 for the building exhaust nearest to the process operations emission unit. N/A		
3) Distance to nearest plant boundary from exhaust point discharge (ft): N/A		
4) Discharge height above grade (ft): N/A		
5) Good engineering practice (GEP) height, if known (ft): N/A		
6) Diameter (or equivalent diameter) of exhaust point (ft): N/A		
7) Exit gas flow rate: N/A	a) Maximum (ACFM): N/A	b) Minimum (ACFM): N/A
8) Exit gas temperature: N/A	a) @ maximum flow rate (˚F): N/A	b) @ minimum flow rate (˚F): N/A
9) Direction of exhaust (vertical, lateral, downward): N/A		
10a) Latitude: N/A	b) Longitude N/A	
11a) UTM zone: N/A	b) UTM vertical (KM): N/A	UTM Horizontal (KM): N/A

NOTE: For a square or rectangular vent, the equivalent diameter is 1.128 times the square root of the stack's area

BUILDING DIMENSION INFORMATION			
12) Dimensions of building on which exhaust point is located	a) Length (ft) N/A	b) Width (ft) N/A	c) Height (ft) N/A
13) Distance to nearest building (ft): N/A			
14) Dimension of this nearest building	a) Length (ft): N/A	b) Width (ft): N/A	c) Height (ft): N/A

15) List all emission units and control devices serviced by this exhaust point.

	Name	Flow Diagram Designation
a)	N/A	N/A
b)		
c)		
d)		
e)		
f)		
g)		
h)		
i)		

Emission Unit
Turbine 2
HRSG 2

Commonwealth of Kentucky
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DIVISION FOR AIR QUALITY

(Submit copies of this form for each individual unit. Make additional copies as needed)

DEP7007A
INDIRECT HEAT EXCHANGER, TURBINE, INTERNAL COMBUSTION ENGINE

Emission Point # 32
Emission Unit # HRSG 2

1) **Type of Unit (Make, Model, Etc.):** Combustion Turbine 2, GE7FA or equivalent w/heat recovery steam generator (HRSG)

Date Installed: Construction start, Q2 2007 (estimated) **Cost of Unit:** To Be Determined

(Date unit was installed, modified or reconstructed, whichever is later.)

Where more than one unit is present, identify with Company's identification or code for this unit:
EP 32 – CT/HRSG#2

2a) **Kind of Unit (Check one):**
1. **Indirect Heat Exchanger** ________
2. **Gas Turbine for Electricity Generation** X
3. **Pipe Line Compressor Engines:**

____ **Gas Turbine**
____ **Reciprocating engines**
(a) 2-cycle lean burn ________
(b) 4-cycle lean burn ________
(c) 4-cycle rich burn ________

4. **Industrial Engine** ________

2b) **Rated Capacity: (Refer to manufacturer's specifications)**
1. **Fuel input (mmBTU/hr):** 1,721.5
2. **Power output (hp):** ________
Power output (MW): approx. 197 (gross w/HRSG 557.3)

SECTION 1. FUEL

3) **Type of Primary Fuel** (*Check*):
____ **A. Coal** ____ **B. Fuel Oil # (*Check one*)** ____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6

____ **C. Natural Gas** ____ **D. Propane** ____ **E. Butane** ____ **F. Wood** ____ **G. Gasoline**

____ **H. Diesel** X **I. Other** (*specify*) Coal Derived Synthesis Gas

4) **Secondary Fuel** (*if any, specify type*): **Natural Gas as backup for Start-Up**

5) **Fuel Composition to Combustion Turbine**

Type	Percent Ash[a]	Percent Sulfur[b]	Heat Content Corresponding to: [c, d]	
	Maximum	Maximum	Maximum Ash	Maximum Sulfur
Primary	See Calculated Emissions	See Calculated Emissions	251 btu/cf	1,000 btu/cf
Secondary	See Calculated Emissions	See Calculated Emissions	251 btu/cf	1,000 btu/cf

a. As received basis. Proximate Analysis for Ash. (May use values in your fuel contract)
b. As received basis. Ultimate Analysis for Sulfur. (May use values in your fuel contract)
c. Higher Heating Value, BTU/Unit. (May use values in your fuel contract)
Suggested units are: Pounds for solid fuel, gallon for liquid fuels, and cu. Ft. for gaseous fuels. If other units are used, please specify.

6) **Maximum Annual Fuel Usage Rate** (***please specify units)*:*** 900 hours/year natural gas

7) **Fuel Source or supplier:** **Syngas produced in the IGCC facility; natural gas from pipeline**

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

8) MAXIMUM OPERATING SCHEDULE FOR THIS UNIT*

__24__ **hours/day** __7__ **days/week** __52__ **weeks/year**

9) If this unit is multipurpose, describe percent in each use category:

Space Heat ________% **Process Heat** _________ % **Power** __100__ %

10) Control options for turbine/IC engine (*Check*)

- __ (1) Water Injection
- __ (2) Steam Injection
- __ (3) Selective Catalytic Reduction (SCR)
- __ (3) Non-Selective Catalytic Reduction (NSCR)
- __ (5) Combustion Modification)
- X (5) Other (*Specify*) Diluent Nitrogen Injection IGCC Process
  Syngas process reduces PM, PM10 and SO2, Acid Gas, Hg and other organics & Metals

IMPORTANT: Form DEP7007N must also be completed for this unit.

SECTION II COMPLETE ONLY FOR INDIRECT HEAT EXCHANGERS

11) Coal-Fired Units

______ **Pulverized Coal Fired:**

__ Dry Bottom __ Wall Fired
__ Wet Bottom __ Tangentially Fired

Fly Ash Rejection: ☐ Yes ☐ No

______ **Cyclone Furnace**

______ **Spreader Stoker**

______ **Overfeed Stoker**

______ **Underfeed Stoker**

______ **Fluidized Bed Combustor:**
____ Circulating Bed
____ Bubbling Bed

______ **Hand-fed**

______ **Other (*specify*)** ______

12) Oil-Fired Unit

______ **Tangentially (Corner) Fired** ______ **Horizontally Opposed (Normal) Fired**

13) Wood-Fired Unit

Fly-Ash Reinjection: ☐ Yes ☐ No

______ **Dutch Oven/Fuel Cell Oven** ______ **Stoker** ______ **Suspension Firing**

______ **Fluidized Bed Combustion (FBC)**

14) Natural Gas-Fired Units

__ **Low NO_x Burners:** ☐ Yes ☐ No

__ **Flue Gas Recirculation:** ☐ Yes ☐ No

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

15) Combustion Air Draft: ________ Natural ________ Induced

Forced Pressure ____________ lbs/sq. in.

Percent excess air (air supplied in excess of theoretical air) ____________ %

SECTION III

16) Additional Stack Data

A. Are sampling ports provided? ☒ **Yes** ☐ **No**
B. If yes, are they located in accordance with 40 CFR 60*? ☒ **Yes** ☐ **No**
C. List other units vented to this stack **none**

17) Attach manufacturer's specifications and guaranteed performance data for the indirect heat exchanger. Include information concerning fuel input, burners and combustion chamber dimensions.

18) Describe fuel transport, storage methods and related dust control measures, including ash disposal and control.

The coal is delivered by conveyor belt or barge. The syngas is delivered by pipe from the gasifier. The natural gas is delivered by pipeline.

*Applicant assumes responsibility for proper location of sampling ports if the Division for Air Quality requires a compliance demonstration stack test.

Commonwealth of Kentucky
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DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]		Permitted Operating Parameters		
		Hourly Operating Rate (MMBtu/hr)	Annual Operating Hours (hrs/yr)	Hourly Operating Rate (MMBtu/hr)	Annual Operating Rate (MMBtu/yr)	Annual Operating Hours (hrs/yr)
32	HRSG 2 CT - Combustion Turbine / HRSG Stack *Emission Unit(s) Controlled:*	1,721.5 MMBtu/hr	8,760	1721.5 MMBtu/hr	15,080,340 MMBtu/hr	8,760
					Nat.Gas use only	900

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors			Control Equipment		Hourly (lb/hr) Emissions			Annual (tons/yr) Emissions		
	Pollutant	Emission Factor (lb/MMbtu)	Emission Factor Basis	Control Equipment Association	Pollutant Overall Efficiency (%)	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable
32	PM/PM10	0.0070	BACT	Carbon bed and Acid Gas Removal	99.90%	12,050.50	12.05		52,781.2	52.8	
	SO_2	0.0430	BACT	Carbon bed and Acid Gas Removal	99.25%	9,869.93	74.02		43,230.3	324.2	
	CO - syngas	0.0360	BACT			61.97	61.97		271.4	271.4	
	CO - nat.gas	0.0530	BACT			91.24	91.24		41.1	41.1	
	Nox - syngas	0.0580	BACT			99.85	99.85		437.3	437.3	
	Nox - nat.gas	0.0870	BACT			149.77	149.77		67.4	67.4	
	VOC	0.0060	BACT			10.33	10.33		45.2	45.2	
	H2SO4	0.0049	BACT			8.44	8.44		36.9	36.9	
	**										

**** REFER TO ATTACHED POC TABLES IN CHAPTER 5 FOR ADDITIONAL POLLUTANTS**

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^{o}F)	Exit Velocity (ft/sec)
32	Unit 2 HRSG 2	200	15.09	200	4,174,728.92	463,641.08	INI	913,829	300.20	109.58
HRSG2										

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Combustion Power Generating Units:					
32	HRSG 2	PM/PM10	401 KAR 51:017	20% Opacity	Periodic Visual Emission Surveys
			40 CFR 64	0.007 lb/MMBtu (BACT)	Initial Performance test & additional testing every 5 years
		CO	401 KAR 60:005	Syn-Gas - 0.036 lb/MMBtu (BACT)	Initial Performance test
			401 KAR 51:017	Natural Gas - 0.053 lb/MMBtu @ 900 hrs/yr	
		NOX	40 CFR 60 Subpart GG	Syn-Gas - 0.058 lb/MMBtu (BACT)	Continuous Emission Monitor
			401 KAR 51:017	Natural Gas -0.087 lb/MMBtu (BACT)	
		SO2	40 CFR 60 Subpart GG	0.043 lb/MMBtu (BACT	Continuous Emission Monitor
			401 KAR 51:017		
		VOC	401 KAR 51:017	0.006 lb/MMBtu (BACT)	Initial Performance test
		H2SO4	40 CFR 64	0.0049 lb/MMBtu (BACT)	Initial Performance test & records of fuel throughput
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8) *
Combustion Power Generating Units:					
32	HRSG 2	PM/PM10	401 KAR 51:017	Opacity	Periodic visual emissions surveys and annual Method 9 test
			40 CFR 64	PM/PM10	Initial performance test
		CO	401 KAR 60:005	CO	None
			401 KAR 51:017		
		NOX	40 CFR 60 Subpart GG	NOX	Continuous Emission Monitor per 40 CFR 60.344(e) , 40 CFR 75 Subpart B, 40 CFR 60 Appendix B & 401 KAR 59.005
			401 KAR 51:017		
		SO2	40 CFR 60 Subpart GG	SO2	Continuous Emission Monitor per 40 CFR 75.10 , 40 CFR 60 Appendix B & 401 KAR 59.005
			401 KAR 51:017		
		VOC	401 KAR 51:017	VOC	Quantity of Fuel Combusted
		H2SO4	40 CFR 64	H2SO4	Quantity of Fuel Combusted
			401 KAR 51:017		

* When more than one standard applies, compliance with the most stringent will demonstrate compliance with all standards

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Recorded[9]	Description of Recordkeeping[10]
Combustion Power Generating Units:					
32	HRSG 2	PM/PM10	401 KAR 51:017	Opacity	All Method 9 Tests and Visual Emission Surveys shall be maintained on site
			40 CFR 64	PM/PM10	Test results shall be maintained on site
		CO	401 KAR 60:005	CO	None
			401 KAR 51:017		
		NOX	40 CFR 60 Subpart GG	NOx	Continuous Emission Monitor per 40 CFR 75 Subpart F
			401 KAR 51:017		
		SO2	40 CFR 60 Subpart GG	SO2	Continuous Emission Monitor per 40 CFR 75 Subpart F
			401 KAR 51:017		
		VOC	401 KAR 51:017	VOC	None
		H2SO4	40 CFR 64	H2SO4	Test results shall be maintained on site
			401 KAR 51:017		Meter readings of quantity of fuel combusted

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Combustion Power Generating Units:					
32	HRSG 2	PM/PM10	401 KAR 51:017	Opacity	
			40 CFR 64	PM/PM10	Calculated Annual Emissions
		CO	401 KAR 60:005		
			401 KAR 51:017	CO	Calculated Annual Emissions
		NOX	40 CFR 60 Subpart GG		
			401 KAR 51:017	NOx	Continuous Emission Monitor per 40 CFR 75 Subpart G
		SO2	40 CFR 60 Subpart GG		
			401 KAR 51:017	SO2	Continuous Emission Monitor per 40 CFR 75 Subpart G
		VOC	401 KAR 51:017	VOC	Calculated Annual Emissions
		H2SO4	40 CFR 64	H2SO4	Calculated Annual Emissions
			401 KAR 51:017		

APPLICANT NAME: Cash Creek Generation, L.L.C.

DEP7007V
continued

SECTION V. TESTING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Tested[13]	Description of Testing[14]
Combustion Power Generating Units:					
32	HRSG 2	PM/PM10	401 KAR 51:017	Opacity	Initial Performance test and once every 5 years thereafter , Method 9
			40 CFR 64	PM/PM10	Initial Performance test and once every 5 years thereafter , Method 1 through 5
		CO	401 KAR 60:005	CO	Initial Performance Test, Method 1 through 4 and Method 10
			401 KAR 51:017		
		NOX	40 CFR 60 Subpart GG	NOx	Continuous Emission Monitor per 40 CFR 75 Subpart I
			401 KAR 51:017		Initial Performance Test
		SO2	40 CFR 60 Subpart GG	SO2	Continuous Emission Monitor per 40 CFR 75 Subpart I
			401 KAR 51:017		Initial Performance Test
		VOC	401 KAR 51:017	VOC	Initial Performance Test, Method 1 through 4 and Method 25A
		H2SO4	40 CFR 64	H2SO4	Initial Performance Test, Method 1 through 4 and Method 8
			401 KAR 51:017		

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

Complete only for stacks 65m or taller

DEP7007Y
Good Engineering Practice (GEP) Stack Height Determination

EMISSIONS UNIT # N/A
EMISSIONS POINT # N/A

EXHAUST POINT INFORMATION		
1) Flow diagram designation of exhaust point N/A		
2) Description of exhaust point (stack, vent, roof monitor, indoors, etc.). If the exhaust point discharges indoors, complete items 3 through 11 for the building exhaust nearest to the process operations emission unit. N/A		
3) Distance to nearest plant boundary from exhaust point discharge (ft): N/A		
4) Discharge height above grade (ft): N/A		
5) Good engineering practice (GEP) height, if known (ft): N/A		
6) Diameter (or equivalent diameter) of exhaust point (ft): N/A		
7) Exit gas flow rate: N/A	**a) Maximum (ACFM):** N/A	b) **Minimum (ACFM):** N/A
8) Exit gas temperature: N/A	**a) @ maximum flow rate (˚F):** N/A	**b) @ minimum flow rate (˚F):** N/A
9) Direction of exhaust (vertical, lateral, downward): N/A		
10a) Latitude: N/A	b) **Longitude** N/A	
11a) UTM zone: N/A	**b) UTM vertical (KM):** N/A	**UTM Horizontal (KM):** N/A

NOTE: For a square or rectangular vent, the equivalent diameter is 1.128 times the square root of the stack's area

BUILDING DIMENSION INFORMATION			
12) Dimensions of building on which exhaust point is located	**a) Length (ft)** N/A	**b) Width (ft)** N/A	**c) Height (ft)** N/A
13) Distance to nearest building (ft): N/A			
14) Dimension of this nearest building	**a) Length (ft):** N/A	**b) Width (ft):** N/A	**c) Height (ft):** N/A

15) List all emission units and control devices serviced by this exhaust point.

	Name	**Flow Diagram Designation**
a)	N/A	N/A
b)		
c)		
d)		
e)		
f)		
g)		
h)		
i)		

Emission Unit
Auxiliary Boiler
EP-15

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

(*Submit copies of this form for each individual unit. Make additional copies as needed*)

DEP7007A
INDIRECT HEAT EXCHANGER, TURBINE, INTERNAL COMBUSTION ENGINE

Emission Point # 15
Emission Unit # 15

1) **Type of Unit (Make, Model, Etc.):** Auxiliary Boiler

Date Installed: Construction start, Q2 2007 (estimated) **Cost of Unit:** To Be Determined

(Date unit was installed, modified or reconstructed, whichever is later.)

Where more than one unit is present, identify with Company's identification or code for this unit:
Unit 1 = EU01

2a) **Kind of Unit (Check one):**
1. Indirect Heat Exchanger X
2. Gas Turbine for Electricity Generation ____
3. Pipe Line Compressor Engines:
   - ____ Gas Turbine
   - ____ Reciprocating engines
     - (a) 2-cycle lean burn ____
     - (b) 4-cycle lean burn ____
     - (c) 4-cycle rich burn ____
4. Industrial Engine ____

2b) **Rated Capacity: (Refer to manufacturer's specifications)**
1. Fuel input (mmBTU/hr): 2.35
2. Power output (hp): ____
   Power output (MW): ____

SECTION 1. FUEL

3) **Type of Primary Fuel** (*Check*):

____ A. Coal ____ B. Fuel Oil # (*Check one*) ____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6

X C. Natural Gas ____ D. Propane ____ E. Butane ____ F. Wood ____ G. Gasoline

____ H. Diesel ____ I. Other (*specify*) ____

4) **Secondary Fuel** (*if any, specify type*): ____

5) **Fuel Composition**

Type	Percent Ash[a]	Percent Sulfur[b]	Heat Content Corresponding to: [c, d]	
	Maximum	Maximum	Maximum Ash	Maximum Sulfur
Primary			Pipeline quality, 1,000 Btu/scf, used for emission estimates	
Secondary				

a. As received basis. Proximate Analysis for Ash. (May use values in your fuel contract)
b. As received basis. Ultimate Analysis for Sulfur. (May use values in your fuel contract)
c. Higher Heating Value, BTU/Unit. (May use values in your fuel contract)
d. Suggested units are: Pounds for solid fuel, gallon for liquid fuels, and cu. Ft. for gaseous fuels. If other units are used, please specify.

6) **Maximum Annual Fuel Usage Rate** (***please specify units)*:***

7) **Fuel Source or supplier:** Pipeline

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

DEP7007A (Continued)

8) MAXIMUM OPERATING SCHEDULE FOR THIS UNIT*

___24___ hours/day   ___7___ days/week   500 HOURS PER YEAR

9) If this unit is multipurpose, describe percent in each use category:

Space Heat ________% Process Heat ___100___ % Power ________ %

10) Control options for turbine/IC engine (*Check*)

- __ (1) Water Injection
- __ (2) Steam Injection
- __ (3) Selective Catalytic Reduction (SCR)
- __ (3) Non-Selective Catalytic Reduction (NSCR)
- __ (5) Combustion Modification)
- X (5) Other (*Specify*) Low NOx burners/design

IMPORTANT: Form DEP7007N must also be completed for this unit.

SECTION II COMPLETE ONLY FOR INDIRECT HEAT EXCHANGERS

11) Coal-Fired Units

________ Pulverized Coal Fired:

- ___ Dry Bottom
- ___ Wall Fired
- ___ Wet Bottom
- ___ Tangentially Fired

Fly Ash Rejection: ☐ Yes ☐ No

________ Cyclone Furnace

________ Spreader Stoker

________ Overfeed Stoker

________ Underfeed Stoker

________ Fluidized Bed Combustor:
- ______ Circulating Bed
- ______ Bubbling Bed

________ Hand-fed

________ Other (*specify*) ________

12) Oil-Fired Unit

________ Tangentially (Corner) Fired   ________ Horizontally Opposed (Normal) Fired

13) Wood-Fired Unit

Fly-Ash Reinjection: ☐ Yes ☐ No

________ Dutch Oven/Fuel Cell Oven   ________ Stoker   ________ Suspension Firing

________ Fluidized Bed Combustion (FBC)

14) Natural Gas-Fired Units

__ Low NO_x Burners: ☒ Yes ☐ No If available

__ Flue Gas Recirculation: ☐ Yes ☒ No

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

15) Combustion Air Draft: ________ Natural ________ Induced

Forced Pressure ____________ lbs/sq. in.

Percent excess air (air supplied in excess of theoretical air) ___________ %

SECTION III

16) Additional Stack Data

A. Are sampling ports provided? ☒ **Yes** ☐ **No**
B. If yes, are they located in accordance with 40 CFR 60*? ☒ **Yes** ☐ **No**
C. List other units vented to this stack NONE

17) Attach manufacturer's specifications and guaranteed performance data for the indirect heat exchanger. Include information concerning fuel input, burners and combustion chamber dimensions.

18) Describe fuel transport, storage methods and related dust control measures, including ash disposal and control.
Direct supply of Natural Gas from pipeline

*Applicant assumes responsibility for proper location of sampling ports if the Division for Air Quality requires a compliance demonstration stack test.

Commonwealth of Kentucky
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DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment] Hourly Operating Rate (MMBtu/hr)	Annual Operating Hours (hrs/yr)	Permitted Operating Parameters Hourly Operating Rate (MMBtu/hr)	Annual Operating Rate (MMBtu/yr)	Annual Operating Hours (hrs/yr)
15	Auxiliary Boiler Auxiliary Boiler Stack *Emission Unit(s) Controlled:*	2.35 MMbtu/hr	500	2.350 MMBtu/hr	1,175 MMBtu/yr	500

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors			Control Equipment		Hourly (lb/hr) Emissions			Annual (tons/yr) Emissions		
	Pollutant	Emission Factor (lb/MMBtu)	Emission Factor Basis	Control Equipment Association	Pollutant Overall Efficiency (%)	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable
15	PM/PM10	0.0076	AP-42	**NONE**		0.0179	0.0179		0.0045	0.0045	
	SO_2	0.0006	AP-42			0.0014	0.0014		0.0004	0.0004	
	CO	0.084	AP-42			0.1974	0.1974		0.0494	0.0494	
	NOx	0.1	AP-42			0.2350	0.2350		0.0588	0.0588	
	VOC	0.0055	AP-42			0.0129	0.0129		0.0032	0.0032	
	**										

**** REFER TO ATTACHED POC TABLE FOR ADDITIONAL POLLUTANTS**

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^oF)	Exit Velocity (ft/sec)
15	Auxiliary Boiler	40	1.31	40	4,174,676.33	463,521.36	INI	1,085	305.60	19.36
AUXB										

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DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Auxiliary Boiler					
15	Auxiliary Boiler 2.35 MMBtu	PM/PM10	401 KAR 59:015	0.56 lbs per million Btu actual heat input	Periodic Method 9 Test
		SO2	401 KAR 51:017	3.0 lbs per million Btu actual heat input	Vendor supplied sulfur analysis of natural gas
				PSD (BACT) Limit on operating hours (500 hr/yr)	Monitor fuel usage and operating hours

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Auxiliary Boiler:					
15	Auxiliary Boiler 2.35 MMBtu	PM/PM10 SO2	401 KAR 59:015	Opacity	Initial Method 9 Test and periodic opacity surveys
			402 KAR 51:017	Fuel sulfur content	Maintain vendor supplied sulfur analysis of fuel
				Operating hours	Monitor hours of operation and quantity of fuel combusted
				Natural Gas combusted	

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Auxiliary Boiler					
15	Auxiliary Boiler 2.35 MMBtu	PM/PM10 SO2	401 KAR 59:015	Opacity	Records of all Method 9 tests shall be maintained on site
			402 KAR 51:017	Fuel sulfur content	Records of the sulfur fuel analysis shall be maintained on site
				Operating Hours	Records of the hours of operation shall be maintained on site
				Quantity gas combusted	Records of the fuel combusted shall be maintained on site

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Auxiliary Boiler					
15	Auxiliary Boiler	PM/PM10	401 KAR 59:015	Opacity	None
	2.35 MMBtu	SO2	401 KAR 51:017	Fuel sulfur content	None
				Hours of Operation	None
				Quantity of Gas combusted	None

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Tested[13]	Description of Testing[14]
Auxiliary Boiler					
15	Auxiliary Boiler 2.35 MMBtu	PM/PM10 CO	401 KAR 59:015	Opacity	Initial Method 9 performance test
			401 KAR 51:017	Fuel sulfur content	None
				Hours of operation	None
				Fuel Combusted	None

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Complete only for stacks 65m or taller

DEP7007Y
Good Engineering Practice (GEP) Stack Height Determination

EMISSIONS UNIT # N/A
EMISSIONS POINT # N/A

EXHAUST POINT INFORMATION		
1) Flow diagram designation of exhaust point N/A		
2) Description of exhaust point (stack, vent, roof monitor, indoors, etc.). If the exhaust point discharges indoors, complete items 3 through 11 for the building exhaust nearest to the process operations emission unit. N/A		
3) Distance to nearest plant boundary from exhaust point discharge (ft): N/A		
4) Discharge height above grade (ft): N/A		
5) Good engineering practice (GEP) height, if known (ft): N/A		
6) Diameter (or equivalent diameter) of exhaust point (ft): N/A		
7) Exit gas flow rate: N/A	a) Maximum (ACFM): N/A	b) Minimum (ACFM): N/A
8) Exit gas temperature: N/A	a) @ maximum flow rate (˚F): N/A	b) @ minimum flow rate (˚F): N/A
9) Direction of exhaust (vertical, lateral, downward): N/A		
10a) Latitude: N/A	b) Longitude N/A	
11a) UTM zone: N/A	b) UTM vertical (KM): N/A	UTM Horizontal (KM): N/A

NOTE: For a square or rectangular vent, the equivalent diameter is 1.128 times the square root of the stack's area

BUILDING DIMENSION INFORMATION			
12) Dimensions of building on which exhaust point is located	a) Length (ft) N/A	b) Width (ft) N/A	c) Height (ft) N/A
13) Distance to nearest building (ft): N/A			
14) Dimension of this nearest building	a) Length (ft): N/A	b) Width (ft): N/A	c) Height (ft): N/A

15) List all emission units and control devices serviced by this exhaust point.

	Name	Flow Diagram Designation
a)	N/A	N/A
b)		
c)		
d)		
e)		
f)		
g)		
h)		
i)		

Emission Unit
Flare
EP-29

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DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N
(continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]: Hourly Operating Rate (MMBtu/hr)	Maximum Operating Parameters: Annual Operating Hours (hrs/yr)	Permitted Operating Parameters: Hourly Operating Rate (MMBtu/hr)	Permitted Operating Parameters: Annual Operating Rate (MMBtu/yr)	Permitted Operating Parameters: Annual Operating Hours (hrs/yr)
29	Flare with 3 continuous Natural gas pilots Only the pilot operates at 8,760 hr/yr *Emission Unit(s) Controlled:*	0.26 MMbtu/hr	8,760	0.260 MMBtu/hr	2,278 MMBtu/hr	8,760

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors: Pollutant	Emission Factors: Emission Factor (lb/MMbtu)	Emission Factors: Emission Factor Basis	Control Equipment: Control Equipment Association	Control Equipment: Pollutant Overall Efficiency (%)	Hourly (lb/hr) Emissions: Uncontrolled Unlimited Potential	Hourly (lb/hr) Emissions: Controlled Limited Potential	Hourly (lb/hr) Emissions: Allowable	Annual (tons/yr) Emissions: Uncontrolled Unlimited Potential	Annual (tons/yr) Emissions: Controlled Limited Potential	Annual (tons/yr) Emissions: Allowable
29	PM/PM10	0.0019	AP-42	**NONE**		0.0005	0.0005		0.0022	0.0022	
	SO_2	0.0006	AP-42			0.0002	0.0002		0.0007	0.0007	
	CO	0.084	AP-42			0.0218	0.0218		0.0957	0.0957	
	VOC	0.0055	AP-42			0.0014	0.0014		0.0063	0.0063	
	NOx	0.1	AP-42			0.0260	0.0260		0.1139	0.1139	
	**										

**** REFER TO ATTACHED POC TABLES IN CHAPTER 5 FOR ADDITIONAL POLLUTANTS**

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^{o}F)	Exit Velocity (ft/sec)
29	Flare	100	3.51	100	4,174,274.93	463,521.67	INI	8,762	1832.00	65.62
FLARE										

DEP7007N
(continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
29	*Flare*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flowrate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3)	Average particle diameter (µm): *(or attach a particle size distribution table)*
1832 °F C	8,762	N/A	N/A	N/A

Equipment Physical Data

Type of control equipment (give descriptions and a sketch with dimensions):
Flare - combustion of sour syngas

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency
	VOC and HAPs	99.9%

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DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.[(1)]	Emission Unit Description[(2)]	Contaminant[(3)]	Origin of Requirement or Standard[(4)]	Applicable Requirement, Standard, Restriction, Limitation, or Exemption[(5)]	Method of Determining Compliance with the Emission and Operating Requirement(s)[(6)]
Flare with 3 Pilots					
29	Flare w/3 Pilot	PM/PM10	401 KAR 63:015	20% Opacity	Initial Performance Test
		CO	401 KAR 51:017	None	None
		NOX	401 KAR 51:017	None	None
		SO2	401 KAR 51:017	None	None

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Flare with 3 Pilots					
29	Flare 3 Pilot	PM/PM10	401 KAR 63:015	Opacity	Periodic visual emissions survey
		CO	401 KAR 51:017	None	None
		NOX	401 KAR 51:017	None	None
		SO2	401 KAR 51:017	None	None

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Flare w/3 pilot					
29	Flare 3 Pilot	PM/PM10	401 KAR 63:015	Opacity	Results of all Method 9 tests and periodic visual emission surveys will be maintained in a logbookon site.
		CO	401 KAR 51:017	None	None
		NOX	401 KAR 51:017	None	None
		SO2	401 KAR 51:017	None	None

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Flare w/3 pilots					
29	Flare 3 Pilot	PM/PM10	401 KAR 63:015	None	None
		CO	401 KAR 51:017	None	None
		NOX	401 KAR 51:017	None	None
		SO2	401 KAR 51:017	None	None

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Flare w/3 Pilots					
29	Flare 3 Pilot	PM/PM10	401 KAR 63:015	Opacity	Test Method 9
		CO	401 KAR 51:017	None	None
		NOX	401 KAR 51:017	None	None
		SO2	401 KAR 51:017	None	None

Emission Unit
Thermal Oxidizer
EP-30

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DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N
(continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]: Hourly Operating Rate (MMBtu/hr)	Maximum Operating Parameters: Annual Operating Hours (hrs/yr)	Permitted Operating Parameters: Hourly Operating Rate (MMBtu/hr)	Permitted Operating Parameters: Annual Operating Rate (MMBtu/yr)	Permitted Operating Parameters: Annual Operating Hours (hrs/yr)
30	Thermal Oxidizer Tail Gas Treatment *Emission Unit(s) Controlled:*	26.16 MMbtu/hr	8,760	26.160 MMBtu/hr	229,162 MMBtu/hr	8,760

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors: Pollutant	Emission Factors: Emission Factor (lb/MMbtu)	Emission Factors: Emission Factor Basis	Control Equipment: Control Equipment Association	Control Equipment: Pollutant Overall Efficiency (%)	Hourly (lb/hr) Emissions: Uncontrolled Unlimited Potential	Hourly (lb/hr) Emissions: Controlled Limited Potential	Hourly (lb/hr) Emissions: Allowable	Annual (tons/yr) Emissions: Uncontrolled Unlimited Potential	Annual (tons/yr) Emissions: Controlled Limited Potential	Annual (tons/yr) Emissions: Allowable
30	PM/PM10	N/A		**NONE**							
	SO_2	0.000535	Report			0.0140	0.0140		0.0613	0.0613	
	CO	N/A									
	NOx	0.0000017	Report			0.0000	0.0000		0.0002	0.0002	
	**										

**** REFER TO ATTACHED POC TABLES IN CHAPTER 5 FOR ADDITIONAL POLLUTANTS**

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^{o}F)	Exit Velocity (ft/sec)
30	Thermal Oxidizer	100	2.49	100	4,174,472.19	463,322.75	INI	8,415	649.40	60.00
TO										

DEP7007N
(continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment

KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
30	*Thermal Oxidizer*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flow rate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (µm): *(or attach a particle size distribution table)*
649.4 °F ______ °C	8,415	To Be Determined	Not Applicable	Not Applicable

Equipment Physical Data

The control equipment manufacturer's equipment specifications and recommended operating procedures may be submitted in place of this information.

Type of control equipment (give descriptions and a sketch with dimensions):

The thermal oxidizer is part of the Acid Gas Removal and sulfur recovery controls. The thermal oxidizer destroys any remaining sour gas existing during the sulfur recovery phase.

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
To Be Determined	H2SO4	To Be Determined

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DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Thermal Oxidizer					
30	Thermal Oxidizer	PM/PM10	401 KAR 51:017	None	None
		CO	401 KAR 59:105	None	None
			401 KAR 51:017	None	None
		NOX	401 KAR 59:105	None	None
			401 KAR 51:017	None	None
		SO2	401 KAR 59:105	250 ppm by volume	Initial Performance Test
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Thermal Oxidizer					
30	Thermal Oxidizer	PM/PM10	401 KAR 51:017	None	None
		CO	401 KAR 59:105	None	None
			401 KAR 51:017		
		NOX	401 KAR 59:105	None	None
			401 KAR 51:017		
		SO2	401 KAR 59:105	SO2	Initial Performance Test
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Recorded[9]	Description of Recordkeeping[10]
Thermal Oxidizer					
30	Thermal Oxidizer	PM/PM10	401 KAR 51:017	None	None
		CO	401 KAR 59:105	None	None
			401 KAR 51:017		
		NOX	401 KAR 59:105	None	None
			401 KAR 51:017		
		SO2	401 KAR 59:105	SO2	Results of the initial performace tests shall be maintained on site
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.[(1)]	Emission Unit Description[(2)]	Contaminant[(3)]	Origin of Requirement or Standard[(4)]	Parameter Reported[(11)]	Description of Reporting[(12)]
Thermal Oxidizer					
30	Thermal Oxidizer	PM/PM10	401 KAR 51:017	None	None
		CO	401 KAR 59:105	None	None
			401 KAR 51:017		
		NOX	401 KAR 59:105	None	None
			401 KAR 51:017		
		SO2	401 KAR 59:105	None	None
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Thermal Oxidizer					
30	Thermal Oxidizer	PM/PM10	401 KAR 51:017	None	None
		CO	401 KAR 59:105	None	None
			401 KAR 51:017		
		NOX	401 KAR 59:105	None	None
			401 KAR 51:017		
		SO2	401 KAR 59:105	SO2	Test methods 1 through 4 and test method 6
			401 KAR 51:017		

Emission Unit
Coal Handling
CH

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DEP7007B
MANUFACTURING OR PROCESSING OPERATIONS

(***Please read instructions before completing this form***)

Emission Point # (1)	Process Description (2)	Continuous or Batch (3)	Maximum Operating Schedule (Hours/Day, Days/Week, Weeks/Year (4)	Process Equipment (Make, Model, Etc.) (5)	Date Installed (6)
Coal	**Handling System**: *				
37	Conveyor Transfer	C	24 hrs/day 7 days/wk 52 wks/yr	To Be Determined	2Q 2010
38	Barge Unload	B	24 hrs/day 7 days/wk 52 wks/yr	To Be Determined	2Q 2010
K3	Conveyor Transfer	C	24 hrs/day 7 days/wk 52 wks/yr	To Be Determined	2Q 2010
33	Transfer House #1	C	24 hrs/day 7 days/wk 52 wks/yr	To Be Determined	2Q 2010
34	Transfer House #2	C	24 hrs/day 7 days/wk 52 wks/yr	To Be Determined	2Q 2010
35	Coal Reclaim	B	24 hrs/day 7 days/wk 52 wks/yr	To Be Determined	2Q 2010
Fugitive	**Emission Sources**:				
20a,	Dead Coal Storage Pile	C	24 hrs/day 7 days/wk 52 wks/yr	Storage Pile, approximately 4 to 5 acres	2Q 2010
20b	Coal Stacker to Long Term Storage Pile	B	1,000 hours per year	Stacker to be designed for optimal operation and reduced emissions	2Q 2010

*** See individual process descriptions and site layout in Section 2 and appendices for detailed information**

DEP7007B (Continued)

Emission Point # (1)	List Raw Material(s) Used (7)	Maximum Quantity Input Of <u>Each</u> Raw Material (Specify Units/Hour) (8) See Item 18 *[Based on Maximum Capacity of Processing Equipment]*	Type of Products (9) See Item 18	Quantity Output* (Specify Units) Maximum Hourly Rated Capacity (Specify Units) (10a)	Quantity Output* (Specify Units) Maximum Annual (Specify Units) (10b)
	Coal Handling System:				
37	Aggregate Coal	800 tph	Aggregate Coal	800 tph	
38	Aggregate Coal	700 tph	Aggregate Coal	700 tph	
K3	Aggregate Coal	700 tph	Aggregate Coal	700 tph	
33	Aggregate Coal	800 tph	Aggregate Coal	800 tph	
34	Aggregate Coal	800 tph	Aggregate Coal	800 tph	
35	Aggregate Coal	105 tph	Crushed Coal	105tph	
	Fugitive Emission Sources:				
20a	Coal	Storage Pile – 90,000 tons	Not Applicable	105 tph	
20b	Coal	Stack out 4.2 acres		4.2 acres	

***(10a) Rated Capacity of Equipment (10b) should be entered only if applicant requests operating restrictions through federally enforceable limitations**

DEP7007B (Continued)

IMPORTANT: Form DEP7007N, Emission, Stacks, and Controls Information must be completed for each emission unit listed below.

Emission Point # (1)	**Fuel Type for Process Heat (11)**	**Rated Burner Capacity (BTU/Hour) (12)**	**Fuel Composition**		**Fuel Usage Rates**		**Note:**
			% Sulfur (13a)	**% Ash (13b)**	**Maximum Hourly (14a)**	**Maximum Annual* (14b)**	**If the combustion products are emitted along with the process emissions, indicate so in this column by writing "combined." (15)**
	Not Applicable - No process heat (and thus no process fuel) is associated with any of the previously-cited EP "Emission Points".						

16) Make a complete list of all wastes generated by each process (e.g. wastewater, scrap, rejects, cleanup waste, etc.). List the hourly (or daily) and annual quantities of each waste and the method of final disposal. (Use a separate sheet of paper, if necessary)

No waste coal will be generated. All captured coal fines will be ultimately sent through the process

17) IMPORTANT: Submit a process flow diagram. Label all materials, equipment and emission point numbers.

18) Material Safety Data Sheets with <u>complete</u> chemical compositions are required for each process.

***(14b) should be entered only if applicant requests operating restrictions through federally enforceable permit conditions.**

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DIVISION FOR AIR QUALITY

DEP7007L

Concrete, Asphalt, Coal, Aggregate, Feed, Corn, Flour, Grain, & Fertilizer

1)	Type of Operation(s): _______ Concrete _______ Asphalt __X__ Coal _______ Aggregate Processing _______ Feed, Corn & Flour _______ Grain _______ Fertilizer
2)	Operating Schedule: __24__ Hours/day __7__ Days/Week __52__ Weeks/Year Percent Annual Throughput: Dec.-Feb. __25__ % Mar.-May __25__ % June-Aug. __25__ % Sept.-Nov. __25__ %
3)	Paved Haul Road Length _______ Miles Unpaved Haul Road Length _____ Miles Describe Dust Control Method for Haul Road(s) and Yard Area:
	Depending on the type of operation (*as checked in box 1*), complete the appropriate section(s). Also, attach a flow diagram showing all of the emission point numbers, and list the numbers on this form where applicable.

DEP7007L
Continued

SECTION III COAL OPERATIONS ONLY (Coal Handling System)

14) Specify the Maximum Operating Rate of Each Applicable Facility and the Corresponding Control Equipment:

Emission Point No.	Affected Facility (Specify quantity in blank)	Max. Capacity*		Control Equipment***	Cost of Controls
		(tons/hr.)	(tons/yr.)**		
38	Receiving Hopper(s) - 1	700		Baghouse	TBD
22	Primary Crusher(s) - 1	800		Wet Suppression	
N/A	Secondary Crusher(s)) __				
N/A	Screen(s) ______				
37, K3, 33, 34	Conveyor Transfer Point(s) - 5 (3 Transfer Houses)	800		Dust Collector, Baghouses & Enclosures	TBD
20b	Stockpile(s) Dead Storage Pile - 1			Wet Suppression/ Compaction & Limit use	
N/A	Rail Loadout(s) ________				
N/A	Barge Loadout(s) _______				
N/A	Truck Loadout(s) _______				
N/A	Thermal Dryer(s) _______				
20a, 35	Other (specify) 20a, Coal Stacking & 35, Coal Reclaim	 105 800		Wet Suppression, Limit drop height & use Underground with wet suppression and baghouse	 TBD

Attach a flow diagram showing all of the emission point numbers, and list the emission point numbers on this form where applicable. This flow diagram should be used to supplement the above information. For example, if there are two conveyor transfer points at 500 tons/hour and three conveyor transfer points at 1000 tons/hour, this distinction can be made on the flow diagram rather than in the table above. If this type of clarification is necessary, please make a note to see the attached flow diagram in the "maximum capacity" column above.

***The maximum capacity should represent the maximum tons/hour that the piece of equipment was designed to physically handle. This number may be larger than you anticipate ever utilizing. For instance, a crusher may be able to handle 1000 tons/hour at its largest setting, but you may plan to operate the crusher at 800 tons/hour. In this case, 1000 tons/hour should still be used in the application. For "shop-made" conveyors or other equipment for which manufacturers' data would not be available, an estimate should be made as to the maximum hourly tonnage that the equipment can physically handle. Again, the maximum number should be used in place of what you may plan to actually use.**
****Should be entered only if applicant requests operating restrictions through federally enforceable permit conditions.**
*****Complete the details on DEP7007N, and submit documents to substantiate control efficiency.**

15) Describe briefly the disposal of particulates collected in the baghouse and/or other waste generated at the site.

All particulates collected in the baghouses will be introduced back into the process.

Commonwealth of Kentucky
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DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N
(continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]: Hourly Operating Rate (tons/hr)	Maximum Operating Parameters: Annual Operating Hours (hrs/yr)	Permitted Operating Parameters: Hourly Operating Rate (tons/hr)	Permitted Operating Parameters: Annual Operating Rate (tons/yr)	Permitted Operating Parameters: Annual Operating Hours (hrs/yr)
37	Transfer tower from mine belt to coal belt 42 Dust Collector Exhaust Point *Emission Unit(s) Controlled: Transfer House collector from mine*	800	8,760	800	2,200,000	8,760
38	Barge Unload by Clam Bucket (38a) to Barge Unload Hopper (38b) *Emission Unit(s) Controlled:*	700	8,760	700	2,200,000	8,760
K3	Barge Unload Hopper (38b) to Barge Coal Belt (K3) 42 inches (18b) *Emission Unit(s) Controlled: barge unload baghouse*	700	8,760	700	2,200,000	8,760
33	Belt Transfer at Transfer Tower #1 Dust Collector Exhaust Point *Emission Unit(s) Controlled: Transfer House #1 baghouse*	800	8,760	800	2,200,000	8,760
34	Belt Transfer at Transfer Tower #2 Dust Collector Exhaust Point *Emission Unit(s) Controlled: Transfer House #2 baghouse*	800	8,760	800	2,200,000	8,760
35	Coal Reclaim *Emission Unit(s) Controlled: Located below ground, no emissions* *coal reclaim baghouse*	800	1,000	800	270,000 tons capacity	1,000
20a	Coal Storage Pile in Stacker Tube with Suppression *Emission Unit(s) Controlled:*	105	2,571	105	270,000 tons capacity	2,571
20b	Coal Storage Pile Wind Erosion *Emission Unit(s) Controlled:*	4.12 acres	8,760	4.2 acres	4.2 acres	8,760

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors: Pollutant	Emission Factors: Emission Factor	Emission Factors: Emission Factor Basis	Control Equipment: Control Equipment Association	Control Equipment: Pollutant Overall Efficiency (%)	Hourly (lb/hr) Emissions: Uncontrolled Unlimited Potential	Hourly (lb/hr) Emissions: Controlled Limited Potential	Hourly (lb/hr) Emissions: Allowable	Annual (tons/yr) Emissions: Uncontrolled Unlimited Potential	Annual (tons/yr) Emissions: Controlled Limited Potential	Annual (tons/yr) Emissions: Allowable
37	PM/PM10	0.0003 lbs/ton	KYDAQ/MRI	baghouse DC4	99.50%	0.2400	0.0012	50.44	1.05	0.005	
38	PM/PM10	0.0003 lbs/ton	KYDAQ/MRI	Wet Suppression	90.00%	0.2100	0.0210	50.44	0.92	0.092	
EK3	PM/PM10	0.0003 lbs/ton	KYDAQ/MRI	baghouse K3	99.50%	0.2100	0.0011	50.44	0.92	0.005	
33	PM/PM10	0.0003 lbs/ton	KYDAQ/MRI	baghouse DC1	99.50%	0.2400	0.0012	50.44	1.05	0.0053	
34	PM/PM10	0.0003 lbs/ton	KYDAQ/MRI	baghouse DC2	99.50%	0.2400	0.0012	50.44	1.05	0.0053	
20a	PM/PM10	0.0343 lbs/ton		baghouse Wet Suppression DC3	99.50%	27.440	0.137	37.24	13.720	0.069	
20a	PM/PM10	0.0343 lbs/ton		Wet Suppression	90.00%	3.602	0.360	37.24	4.630	0.463	
20b	PM/PM10	241.13 lb/acre/yr	KYDAQ/MRI	Wet Suppression Compaction	90.00%	0.12	0.0012		0.51	0.051	

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^oF)	Exit Velocity (ft/sec)
34 THDC34	Transfer House #2 Dust Collector	20	2.62	20	4,174,479.11	463,784.84	INI	18,254	ambient	56.43
33 THDC33	Transfer House #1 Dust Collector	20	2.62	20	4,174,882.90	464,059.92	INI	18,254	ambient	56.43
35 CRDC35	Coal Reclaim Dust Collector	20	2.62	20	4,174,470.80	463,693.50	INI	18,254	ambient	56.43
K3	Barge Unload hopper to belt	20	2.62	20	4,174,661.67	464,921.96	INI	18,254	ambient	56.43
37 TRDC37	Transfer House, mine transfer, #4 Dust Collector	20	2.62	20	4,175,420.74	463,620.78	INI	18,254	ambient	56.43

DEP7007N
(continued)

SECTION III. Control Equipment Information for Filter

KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
K3	*Coal Transfer from Barge unload hopper to belt dust collector (Coal Handling System)*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flow rate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (µm): *(or attach a particle size distribution table)*
Ambient °F	18,254	To Be Determined	To Be Determined	To Be Determined

Equipment Physical Data

Type of filter unit:	Dimensions of filter unit (specify units):	Filtering material:
Fabric Filter	Filtering area: TBD	To Be Determined

Cleaning method:	Gas cooling method:
☐ Shaker ☑ Pulse Air ☐ Reverse Air ☐ Pulse Jet ☐ Other (specify) ______	☐ Ductwork: Length ______ ft. Diameter ______ inches ☐ Heat Exchanger ☐ Bleed-in Air ______ scfm (@ 68° F) ☐ Water Spray ______ gpm ☑ Other (specify) To Be Determined

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
To Be Determined	Particulate Matter (PM/PM10) (Coal Dust)	99.5%

DEP7007N
(continued)

SECTION III. Control Equipment Information for Filter					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
37	*Coal Transfer from mine Dust Collector (Coal Handling System)*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flow rate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (μm): *(or attach a particle size distribution table)*
Ambient F ___ C	18,254	To Be Determined	To Be Determined	To Be Determined

Equipment Physical Data

Type of filter unit:	Dimensions of filter unit (specify units):	Filtering material:
Fabric Filter	Filtering area: TBD	To Be Determined

Cleaning	Gas cooling method:
☐ Shaker	☐ Ductwork: Length ______ ft. Diamet ______ inches
☑ Pulse Air	☐ Heat Exchanger
☐ Reverse Air	☐ Bleed-in Air ______ scfm (@ 68^o F)
☐ Pulse Jet	☐ Water Spray ______ gpm
☐ Other (specify) ______	☑ Other (specify) To Be Determined

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
To Be Determined	Particulate Matter (PM/PM10) (Coal Dust)	99.5%

DEP7007N
(continued)

SECTION III. Control Equipment Information for Filter

KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
35	*Coal Reclaim Dust Collector (Coal Handling System) Controls process points 21 and 22*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flow rate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3)	Average particle diameter (µm): *(or attach a particle size distribution table)*
Ambient °F ______ °C	18,254	To Be Determined	To Be Determined	To Be Determined

Equipment Physical Data

Type of filter unit:	Dimensions of filter unit (specify	Filtering material:
Fabric Filter	Filtering area: TBD Unit total width: TBD Unit total height: TBD	To Be Determined

Cleaning	Gas cooling method:
☐ Shaker ☑ Pulse Air ☐ Reverse Air ☐ Pulse Jet ☐ Other (specify)______	☐ Ductwork: Length ______ ft. Diam(______ inches ☐ Heat Exchanger ☐ Bleed-in Air ______ scfm (@ 68° F) ☐ Water Spray ______ gpm ☑ Other (specify) To Be Determined

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
To Be Determined	Particulate Matter (PM/PM10) (Coal Dust)	99.5%

DEP7007N
(continued)

SECTION III. Control Equipment Information for Filter

KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
34	*Transfer House #2 Dust Collector DC-2 (Coal Handling System) Controls process points 19, 18d and 18*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flow rate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (µm): *(or attach a particle size distribution table)*
Ambient F ______ °C	18,254	To Be Determined	To Be Determined	To Be Determined

Equipment Physical Data

Type of filter unit:	Dimensions of filter unit (specify units):	Filtering material:
Fabric Filter	Filtering area: TBD Unit total width: TBD Unit total height: TBD	To Be Determined

Cleaning method:	Gas cooling method:
☐ Shaker ☑ Pulse Air ☐ Reverse Air ☐ Pulse Jet ☐ Other (specify) ______	☐ Ductwork: Length______ . ______ inches ☐ Heat Exchanger ☐ Bleed-in Air______ scfm (@ 68° F) ☐ Water Spray ______ gpm ☑ Other (specify) To Be Determined

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
To Be Determined	Particulate Matter (PM/PM10) (Coal Dust)	99.5%

DEP7007N
(continued)

SECTION III. Control Equipment Information for Filter					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
33	*Transfer House #1 Dust Collector DC-1 (Coal Handling System) Controls process points 17 and 18c*	*To Be Determined*	*To Be Determined*	Estimated 2Q 2010	*To Be Determined*

Inlet Gas Stream Data

Temperature:	Flow rate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (µm): *(or attach a particle size distribution table)*
Ambient °F ______ °C	18,254	To Be Determined	To Be Determined	To Be Determined

Equipment Physical Data

The control equipment manufacturer's equipment specifications and recommended operating procedures may be submitted in place of this information.

Type of filter unit:	Dimensions of filter unit (specify units):	Filtering material:
Fabric Filter	Filtering area: TBD Unit total width: TBD Unit total height: TBD	To Be Determined

Cleaning method:
- ☐ Shaker
- ☑ Pulse Air
- ☐ Reverse Air
- ☐ Pulse Jet
- ☐ Other (specify) ____________

Gas cooling method:
- ☐ Ductwork: Length ________ ft. Diameter ________ inches
- ☐ Heat Exchanger
- ☐ Bleed-in Air ____________ scfm (@ 68° F)
- ☐ Water Spray __________ gpm
- ☑ Other (specify) To Be Determined

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
To Be Determined	Particulate Matter (PM/PM10) (Coal Dust)	99.5%

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Applicable Requirement, Standard, Restriction, Limitation, or Exemption[5]	Method of Determining Compliance with the Emission and Operating Requirement(s)[6]
Coal Handling System:					
33	Transfer House #1 Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	<20% Opacity	Periodic Method 9 Test
			401 KAR 51:017	BACT	40 CFR 60, Appendix A - Initial Performance Test
34	Transfer House #2 Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	<20% Opacity	Periodic Method 9 Test
			401 KAR 51:017	BACT	40 CFR 60, Appendix A - Initial Performance Test
35	Coal Reclaim Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	<20% Opacity	Periodic Method 9 Test
			401 KAR 51:017	BACT	40 CFR 60, Appendix A - Initial Performance Test
37	Transfer House, mine to belt Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	<20% Opacity	Periodic Method 9 Test
			401 KAR 51:017	BACT	40 CFR 60, Appendix A - Initial Performance Test
Fugitive Emission Sources:					
20a & 20b (Fugitive)	Dead Coal Storage Pile	PM/PM10	401 KAR 63:010	No visible emissions crossing the property line	Maintain monthly records of coal in storage pile.
			401 KAR 51:017	BACT	Perform periodic visual surveys

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION II. MONITORING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Monitored[7]	Description of Monitoring[8]
Coal Handling System:					
33	Transfer House #1 Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	40 CFR 60 Subpart Y, Quarterly Method 9 test
			401 KAR 51:017	Coal Processed	Daily records of coal throughput
34	Transfer House #2 Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	40 CFR 60 Subpart Y, Quarterly Method 9 test
			401 KAR 51:017	Coal Processed	Daily records of coal throughput
35	Coal Reclaim Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	40 CFR 60 Subpart Y, Quarterly Method 9 test
			401 KAR 51:017	Coal Processed	Daily records of coal throughput
37	Transfer House, mine to belt Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	40 CFR 60 Subpart Y, Quarterly Method 9 test
			401 KAR 51:017	Coal Processed	Daily records of coal throughput
Fugitive Emission Sources:					
20a & 20b (Fugitive)	Dead Coal Storage Pile	PM/PM10	401 KAR 63:010	Visible Emissions	Quarterly visual emissions survey
			401 KAR 51:017	Coal Processed	Monthly average of daily coal throughput of pile

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Coal Handling System:					
33	Transfer House #1	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	A log book of visual observations will be maintained on site.
	Baghouse		401 KAR 51:017	Coal Processed	Records of coal processed will be maintained for five years on site.
34	Transfer House #2	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	A log book of visual observations will be maintained on site.
	Baghouse		401 KAR 51:017	Coal Processed	Records of coal processed will be maintained for five years on site.
35	Coal Reclaim	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	A log book of visual observations will be maintained on site.
	Baghouse		401 KAR 51:017	Coal Processed	Records of coal processed will be maintained for five years on site.
37	Transfer House, mine to belt	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	A log book of visual observations will be maintained on site.
	Baghouse		401 KAR 51:017	Coal Processed	Records of coal processed will be maintained for five years on site.
Fugitive Emission Sources:					
EP-20a, 20b	Dead Coal Storage	PM/PM10	40 CFR Part 60 Subpart Y	Visible Emissions	A log book of visual observations will be maintained on site.
(Fugitive)	Pile		401 KAR 51:017	Coal Processed	Records of coal processed will be maintained for five years on site.

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Coal Handling System:					
33	Transfer House #1	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
	Baghouse		401 KAR 51:017		
34	Transfer House #2	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
	Baghouse		401 KAR 51:017		
35	Coal Reclaim	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
	Baghouse		401 KAR 51:017		
37	Transfer House, mine to belt	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
	Baghouse		401 KAR 51:017		
Fugitive Emission Sources:					
20a & 20b	Dead Coal Storage Pile	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
(Fugitive)			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, L.L.C.

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Coal Handling System:					
33	Transfer House #1 Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Quarterly Method 9 Test
			401 KAR 51:017		
34	Transfer House #2 Baghouse	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Quarterly Method 9 Test
			401 KAR 51:017		
35	Coal Reclaim	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Quarterly Method 9 Test
	Baghouse		401 KAR 51:017		
37	Transfer House, mine to belt	PM/PM10	40 CFR Part 60 Subpart Y	Opacity	Quarterly Method 9 Test
	Baghouse		401 KAR 51:017		
Fugitive Emission Sources:					
20a & 20b (Fugitive)	Dead Coal Storage Pile	PM/PM10	401 KAR 63:010	Visible Emissions	Quarterly visual emissions survey
			401 KAR 51:017		

Emission Unit
Cooling Tower

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007B
MANUFACTURING OR PROCESSING OPERATIONS

(***Please read instructions before completing this form***)

Emission Point # (1)	Process Description (2)	Continuous or Batch (3)	Maximum Operating Schedule (Hours/Day, Days/Week, Weeks/Year (4)	Process Equipment (Make, Model, Etc.) (5)	Date Installed (6)
	COOLING TOWERS				
CT1	Cooling Tower, Cell # 1	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT2	Cooling Tower, Cell # 2	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT3	Cooling Tower, Cell # 3	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT4	Cooling Tower, Cell # 4	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT5	Cooling Tower, Cell # 5	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT6	Cooling Tower, Cell # 6	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT7	Cooling Tower, Cell # 7	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010
CT8	Cooling Tower, Cell # 8	**C**	24 hr/day, 7 day/week, 52 weeks/yr	Mechanical Draft	2Q 2010

Emission Point # (1)	**List Raw Material(s) Used (7)**	**Maximum Quantity Input Of Each Raw Material (Specify Units/Hour) (8) See Item 18** ***[Based on Maximum Capacity of Processing Equipment]***	**Type of Products (9) See Item 18**	**Quantity Output* (Specify Units)**	
				Maximum Hourly Rated Capacity (Specify Units) (10a)	**Maximum Annual (Specify Units) (10b)**
	COOLING TOWERS				
CT1	Water	602.1 gal/min	Water	477.75 gal/min	
CT2	Water	602.1 gal/min	Water	477.75 gal/min	
CT3	Water	602.1 gal/min	Water	477.75 gal/min	
CT4	Water	602.1 gal/min	Water	477.75 gal/min	
CT5	Water	602.1 gal/min	Water	477.75 gal/min	
CT6	Water	602.1 gal/min	Water	477.75 gal/min	
CT7	Water	602.1 gal/min	Water	477.75 gal/min	
CT8	Water	602.1 gal/min	Water	477.75 gal/min	

***(10a) Rated Capacity of Equipment** **(10b) Should be entered only if applicant requests operating restrictions through federally enforceable limitations**

DEP7007B
(Continued)

IMPORTANT: Form DEP7007N, Emission, Stacks, and Controls Information must be completed for each emission unit listed below.

Emission Point # (1)	Fuel Type for Process Heat (11)	Rated Burner Capacity (BTU/Hour) (12)	Fuel Composition		Fuel Usage Rates		Note:
			% Sulfur (13a)	% Ash (13b)	Maximum Hourly (14a)	Maximum Annual* (14b)	If the combustion products are emitted along with the process emissions, indicate so in this column by writing "combined." (15)
	Not Applicable - No process heat (and thus no process fuel) is associated with any of the previously-cited EC "Emission Points".						

16) Make a complete list of all wastes generated by each process (e.g. wastewater, scrap, rejects, cleanup waste, etc.). List the hourly (or daily) and annual quantities of each waste and the method of final disposal. (Use a separate sheet of paper, if necessary)

17) No Waste is anticipated from these processes

18) IMPORTANT: Submit a process flow diagram. Label all materials, equipment and emission point numbers.

Material Safety Data Sheets with complete chemical compositions are required for each process.

(14b) Should be entered only if applicant requests operating restrictions through federally enforceable permit conditions.

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log #

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment] Hourly Operating Rate (gal/min)	Annual Operating Hours (hrs/yr)	Permitted Operating Parameters Hourly Operating Rate (gal/hr)	Annual Operating Rate (gal/yr)	Annual Operating Hours (hrs/yr)
5	Cooling Tower Exhaust Vents for Cooling tower, 8 cells *Emission Unit(s) Controlled: Mist Eliminators on each cell*	4,816.8 Gal./Minut	8,760	289,008 gallons/hr drift	2,531,710,080 gallons/yr	8,760

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors: Pollutant	Emission Factor lb/hr	Emission Factor Basis	Control Equipment: Control Equipment Association	Pollutant Overall Efficiency (%)	Hourly (lb/hr) Emissions: Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable	Annual (tons/yr) Emissions: Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable
5	PM/PM10	0.0400	Eng. Design	Mist Collectors	99.95%	80.0000	0.0400		350.400	0.175	

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^oF)	Exit Velocity (ft/sec)
CT1	Cooling Tower Cell #1	50	30	50	4,174,862.20	463,530.29	INI	1,555,654	ambient	36.68
CT2	Cooling Tower Cell #2	50	30	50	4,174,847.04	463,519.88	INI	1,555,654	ambient	36.68
CT3	Cooling Tower Cell #3	50	30	50	4,174,831.87	463,509.47	INI	1,555,654	ambient	36.68
CT4	Cooling Tower Cell #4	50	30	50	4,174,816.70	463,499.07	INI	1,555,654	ambient	36.68
CT5	Cooling Tower Cell #5	50	30	50	4,174,801.53	463,489.25	INI	1,555,654	ambient	36.68
CT6	Cooling Tower Cell #6	50	30	50	4,174,786.07	463,479.14	INI	1,555,654	ambient	36.68
CT7	Cooling Tower Cell #7	50	30	50	4,174,771.20	463,469.03	INI	1,555,654	ambient	36.68
CT8	Cooling Tower Cell #8	50	30	50	4,174,756.33	463,458.92	INI	1,555,654	ambient	36.68

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT1	*Mist Eliminator for Cooling Tower Cell 1*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data				
Temperature: Ambient °F °C	Flowrate (acfm): 1,555,654	Gas density (lb/ft^3): N/A	Particle density (lb/ft^3) or Specific Gravity: N/A	Average particle diameter (µm): *(or attach a particle size distribution table)* N/A

Equipment Physical Data

Type of control equipment (give descriptions and a sketch with dimensions):
Mist Eliminator

Equipment Operational Data		
Pressure drop across unit (inches water gauge):	Pollutants collected/controlled: PM/PM10	Pollutant removal/destruction efficiency (%): 99.95%

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT2	*Mist Eliminator for Cooling Tower Cell 2*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*
Inlet Gas Stream Data					
Temperature: Ambient F ____ °C		Flowrate (acfm): 1,555,654	Gas density (lb/ft^3): N/A	Particle density (lb/ft^3) N/A	Average particle diameter (μm): *(or attach a particle size distribution table)* N/A
Equipment Physical Data					
Type of control equipment (give descriptions and a sketch with dimensions): Mist Eliminator					
Equipment Operational Data					
Pressure drop across unit (inches water gauge):		Pollutants collected/controlled: PM/PM10		Pollutant removal/destruction efficiency (%): 99.95%	

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT3	*Mist Eliminator for Cooling Tower Cell 3*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data				
Temperature: Ambient F ______ °C	Flowrate (acfm): 1,555,654	Gas density (lb/ft³): N/A	Particle density (lb/ft³) or Specific Gravity: N/A	Average particle diameter (µm): *(or attach a particle size distribution table)* N/A

Equipment Physical Data
Type of control equipment (give descriptions and a sketch with dimensions): Mist Eliminator

Equipment Operational Data		
Pressure drop across unit (inches water gauge):	Pollutants collected/controlled: PM/PM10	Pollutant removal/destruction efficiency (%): 99.95%

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT4	*Mist Eliminator for Cooling Tower # 1 Cell 4*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data

Temperature:	Flowrate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (µm): *(or attach a particle size distribution table)*
Ambient F ____ °C	1,555,654	N/A	N/A	N/A

Equipment Physical Data

Type of control equipment (give descriptions and a sketch with dimensions):
Mist Eliminator

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency
	PM/PM10	99.95%

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT5	*Mist Eliminator for Cooling Tower Cell 5*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data

Temperature:	Flowrate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3) or Specific Gravity:	Average particle diameter (µm): *(or attach a particle size distribution table)*
Ambient = ____ ° C	1,555,654	N/A	N/A	N/A

Equipment Physical Data

Type of control equipment (give descriptions and a sketch with dimensions):

Mist Eliminator

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency (%):
	PM/PM10	99.95%

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT6	*Mist Eliminator for Cooling Tower Cell 6*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data				
Temperature: Ambient F ___ °C	Flowrate (acfm): 1,555,654	Gas density (lb/ft^3): N/A	Particle density (lb/ft^3) or Specific Gravity: N/A	Average particle diameter (µm): *(or attach a particle size distribution table)* N/A

Equipment Physical Data
Type of control equipment (give descriptions and a sketch with dimensions): Mist Eliminator

Equipment Operational Data		
Pressure drop across unit (inches water gauge):	Pollutants collected/controlled: PM/PM10	Pollutant removal/destruction efficiency (%): 99.95%

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT7	*Mist Eliminator for Cooling Tower Cell 7*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data				
Temperature: Ambient F ______ °C	Flowrate (acfm): 1,555,654	Gas density (lb/ft^3): N/A	Particle density (lb/ft^3) or Specific Gravity: N/A	Average particle diameter (μm): *(or attach a particle size distribution table)* N/A

Equipment Physical Data
Type of control equipment (give descriptions and a sketch with dimensions): Mist Eliminator

Equipment Operational Data		
Pressure drop across unit (inches water gauge):	Pollutants collected/controlled: PM/PM10	Pollutant removal/destruction efficiency (%): 99.95%

DEP 7007N
(Continued)

SECTION III. Control Equipment Information for Other Type of Control Equipment					
KyEIS Control ID #	Control Equipment Description	Manufacturer	Model Name and Number	Date Installed	Cost
CT8	*Mist Eliminator for Cooling Tower Cell 8*	*TBD*	*TBD*	Estimated 2Q 2010	*TBD*

Inlet Gas Stream Data

Temperature:	Flowrate (acfm):	Gas density (lb/ft^3):	Particle density (lb/ft^3)	Average particle diameter (μm): *(or attach a particle size distribution table)*
Ambient F ______ °C	1,555,654	N/A	N/A	N/A

Equipment Physical Data

Type of control equipment (give descriptions and a sketch with dimensions):
Mist Eliminator

Equipment Operational Data

Pressure drop across unit (inches water gauge):	Pollutants collected/controlled:	Pollutant removal/destruction efficiency
	PM/PM10	99.95%

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DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Cooling Towers:					
CT1, CT2, CT3, CT4, CT5, CT6, CT7, CT8	Cooling Tower 1 - Cell 1 through Cell 8	PM/PM10	401 KAR 51:017	0.04 lbs/hr - BACT	Maintain record of manufacturer design of drift eliminator Maintain records of water processed
Fugitive Emission Sources:					
	No fugitive sources associated with this unit				

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Cooling Towers:					
CT1, CT2, CT3, CT4, CT5, CT6, CT7, CT8	Cooling Tower 1 - Cell 1 through Cell 8	PM/PM10	401 KAR 51:017	Water Circulation	401 KAR 51:017 Maintain records of amount of water processed
Fugitive Emission Sources:					
	No fugitive sources associated with this unit				

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Recorded[9]	Description of Recordkeeping[10]
Cooling Towers:					
CT1, CT2, CT3, CT4, CT5, CT6, CT7, CT8	Cooling Tower 1 - Cell 1 through Cell 8	PM/PM10	401 KAR 51:017	Water Circulation and total dissolved solids	Monthly, sample and test for total dissolved solids of circulating water
					Maintain records on site of drift eliminator maintenance, repairs and malfunctions, maximum pumping capacity and total liquid drift.
Fugitive Emission Sources:					
	No fugitive sources associated with this unit				

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Cooling Towers:					
CT1, CT2, CT3, CT4, CT5, CT6, CT7, CT8	Cooling Tower 1 -	PM/PM10	401 KAR 51:017	Design	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
	Cell 1 through Cell 8			Water Circulation & total dissolved solids	
Fugitive Emission Sources:					
	No fugitive sources associated with this unit				

APPLICANT NAME: Cash Creek Generation, LLC

DEP7007V
continued

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Cooling Towers:					
CT1, CT2, CT3, CT4, CT5, CT6, CT7, CT8	Cooling Tower 1 -	PM/PM10	401 KAR 51:017	Suspended solids	Monthly, sample and test for total dissolved solids of circulating water
	Cell 1 through Cell 8				
Fugitive Emission Sources:					
	No fugitive sources associated with this unit				

Emission Unit
Emergency Fire Pump
FP

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DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment] Hourly Operating Rate (MMBtu/hr)	Annual Operating Hours (hrs/yr)	Permitted Operating Parameters Hourly Operating Rate (MMBtu/hr)	Annual Operating Rate (MMBtu/yr)	Annual Operating Hours (hrs/yr)
FP1	Natural Gas Emergency Fire Pump Fire Pump Exhaust Stack *Emission Unit(s) Controlled:*	2.4 MMbtu/hr	500	2.400 MMBtu/hr	1,200 MMBtu/yr	500

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors: Pollutant	Emission Factor (lb/MMBtu)	Emission Factor Basis	Control Equipment: Control Equipment Association	Pollutant Overall Efficiency (%)	Hourly (lb/hr) Emissions: Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable	Annual (tons/yr) Emissions: Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable
15	PM/PM10	0.0076	AP-42	**NONE**		0.0182	0.0182		0.0046	0.0046	
	SO_2	0.0006	AP-42			0.0014	0.0014		0.0004	0.0004	
	CO	0.084	AP-42			0.2016	0.2016		0.0504	0.0504	
	NOx	0.1	AP-42			0.2400	0.2400		0.0600	0.0600	
	VOC	0.0055	AP-42			0.0132	0.0132		0.0033	0.0033	
	**										

**** REFER TO ATTACHED POC TABLE FOR ADDITIONAL POLLUTANTS**

DEP7007N
(continued)

SECTION II. Stack Information										
		Stack Physical Data			Stack Geographic Data			Stack Gas Stream Data		
KyEIS Stack ID #	Stack Description	Height (ft)	Diameter (ft)	Vent Height (ft)	Vertical Coordinate	Horizontal Coordinate	Coordinate Collection Method Code	Flowrate (acfm)	Temperature (^oF)	Exit Velocity (ft/sec)
FP1	Natural Gas Emergency Fire Pump	40	0.49	40	4,174,407.81	463,130.86	INI	863	680.00	164.04
FP										

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DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Applicable Requirement, Standard, Restriction, Limitation, or Exemption[5]	Method of Determining Compliance with the Emission and Operating Requirement(s)[6]
Natural Gas Emergency Fire Pump					
FP1	Emergency Fire Pump	PM/PM10	401 KAR 51:017	0.0182 lbs/hr	Periodic Visual Emissons Surveys
		CO	401 KAR 51:017	0.2016 lbs/hr	Ongoing manufacturer's recommended maintenance
		NOx	401 KAR 51:017	0.24 lbs/hr	Ongoing manufacturer's recommended maintenance
		SO2	401 KAR 51:017	0.0014 lbs/hr	Combust fuel with a sulfur content of no more than 0.2%
		VOC	401 KAR 51:017	0.0132 lbs/hr	Ongoing manufacturer's recommended maintenance

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Natural Gas Emergency Fire Pump					
FP1	Emergency Fire Pump	PM/PM10	401 KAR 51:017	Opacity	401 KAR 59:010, quarterly visual emissions survey, when operating
		CO	401 KAR 51:017	Maintenance Records	Maintenance logs shall be maintained
		NOx	401 KAR 51:017	Maintenance Records	Maintenance logs shall be maintained
		SO2	401 KAR 51:017	Sulfur Content	Certified vendor material data sheet

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Natural Gas Emergency Fire Pump					
FP1	Emergency Fire Pump	PM/PM10	401 KAR 51:017	Visible Emissions	A log book of visual observations made shall be maintained on site.
		CO	401 KAR 51:017	Maintenance completed	Records of maintenance will be maintained for five years on site.
		NOx	401 KAR 51:017	Maintenance completed	Records of maintenance will be maintained for five years on site.
		SO2	401 KAR 51:017	Sulfur content	Vendor supplied data sheet will be maintained for five years. .
		VOC	401 KAR 51:017	Maintenance completed	Records of maintenance will be maintained for five years on site.

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Natural Gas Emergency Fire Pump					
FP1	Emergency Fire Pump	PM/PM10	401 KAR 51:017	None	Emergency Unit, no reporting unless unit operates more than 500 hours per year
		CO	401 KAR 51:017	None	Emergency Unit, no reporting unless unit operates more than 500 hours per year
		NOx	401 KAR 51:017	None	Emergency Unit, no reporting unless unit operates more than 500 hours per year
		SO2	401 KAR 51:017	None	Emergency Unit, no reporting unless unit operates more than 500 hours per year
		VOC	401 KAR 51:017	None	Emergency Unit, no reporting unless unit operates more than 500 hours per year

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Natural Gas Emergency Generator					
FP1	Emergency Fire Pump	PM/PM10	401 KAR 51:017	Visible Emissions	Quarterly visual emissions survey
		CO	401 KAR 51:017	None	N/A
		NOx	401 KAR 51:017	None	N/A
		SO2	401 KAR 51:017	Sulfur	Performed by vendor
		VOC	401 KAR 51:017	None	N/A

Emission Unit
Storage Tank
T

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DEP7007J

VOLATILE LIQUID STORAGE

Source Name Cash Creek Generation, LLC I.D. # DSFT

SECTION A **GENERAL** **Emission Point #:** TANK

(Note: Manufacturer's specifications, drawings, and other pertinent information must accompany all control plans. Also, prior to installing any equipment, approval from the Fire Marshall's Office shall be obtained. If more space is required to answer a question, use a separate sheet. Attach a Material Safety Data Sheet (MSDS) for each product stored.)

1) **How are the incoming products received** (*Check or, if more than one mode is used, specify the percent volatile liquid throughput by each mode and for each product):*

(a) Tank Truck ☒ 100 % (b)Trailer ☐ ____ % (c) Railcar ☐ ____ %

(d) Pipeline ☐ ____ % (e) Marine Tank ☐ ____ % (f) Barge ☐ ____ %

(g) Other (*specify*) ____

2) **How are outgoing products transported** *(Check one or, if more than one mode is used, specify the percent volatile liquid throughput by each mode and for each product:*

(a) Tank Truck ☐ ____ % (b)Trailer ☐ ____ % (c) Railcar ☐ ____ %

(d) Pipeline ☐ ____ % (e) Marine Tank ☐ ____ % (f) Barge ☐ ____ %

(g) Other (*specify*) none- product combusted on site

PRODUCT DATA:

Product Type (a)	Liquid Density (lb/gal)	Liquid Molecular Weight	Maximum		Minimum		Maximum Annual Throughput (gals)
			Temp (ºF)	Vapor Press (PSI)	Temp (ºF)	Vapor Press (PSI)	
Diesel Fuel	7.128 lb/gal	Unknown	ambient	< 1.0	ambient	< 1.0	100,000 gallons

3) (a) List liquid stored (premium gasoline, regular gasoline, unleaded gasoline, acetone, isopropyl alcohol, Xylene, etc.) Attach a Material Safety Data Sheet (MSDS) for each product stored.
(b) The color of the tank increases the storage temperature of an outdoor tank above ambient temperature by 2.5º F for aluminum (silver) paint, 3.5º F for black paint, and 0º F for white paint.
4) If gasoline is not handled, or if the outgoing product is shipped entirely by barge or marine tank, OMIT Sections B and C. Go to Section D.
5) If incoming product is received by pipeline, barge, or marine tank, the plant is a "BULK GASOLINE TERMINAL." Omit Section B. Complete Sections C and D only.
6) If the incoming product is received by tank truck, trailer, or other non-marine vessel, the plant is a "BULK GASOLINE PLANT." Complete Sections B and D only.

Section D

Please refer to the appropriate regulations for storage vessels (401 KAR 59:050, 60:005 [NSPS], or 61:060) for the requirements. Please refer to AP-42, Liquid storage tank section.

DEP7007J Continued

Part 1: All Storage Tanks

Tank ID #	Product Stored	Date Installed	Tank Diameter (Feet)	Tank Height or Length (Feet)	Maximum Hourly Filling Rate (Gallons/hr.)	Maximum Annual Throughput (Gallons/Year	Tank Capacity (Gallons)
DSFT	Diesel Fuel – Main Tank	TBD	10	17	TBD	100,000 gal/yr	10,000 gallons

fuel tank is for fueling onsite diesel vehicles.

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Storage Tanks					
DSFT	Non-pressure Storage vessel	VOC	401 KAR 59:050	Contents	Vendor supplied material data sheets

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DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Storage Tanks					
DSFT	Non-pressure Storage vessel	VOC	401 KAR 59:050	Store Diesel Fuel - thus exempt	Vendor supplied material data sheets

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Storage Tanks					
DSFT	Non-pressure Storage vessel	VOC	401 KAR 59:050	Contents	Records of vendor supplied data sheets will be maintained for five years on site

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Storage Tanks					
DSFT	Non-pressure Storage vessel	VOC	401 KAR 59:050	None	None required

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Storage Tanks					
DSFT	Non-pressure Storage vessel	VOC	401 KAR 59:050	None	None

Emission Unit
Cold Solvent Parts Cleaner
PC

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DEP7007M
METAL CLEANING DEGREASERS

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Depending on the type of degreasing operation, complete the corresponding section *only*.
If more than one degreaser is located at this plant, make additional copies of this form, as necessary.

Emissions Point #_CCD1
Emission Unit #__CCD1__

SECTION I COLD CLEANING DEGREASER ONLY

1) Manufacturer ___TBD________ Model No. ____TBD___ Serial No. _____TBD________

Inside Dimensions of Tank (ft.): Width ___TBD__ Length ___TBD__ Depth ___TBD________

Freeboard height: ___TBD__________ feet Date Tank Installed ___TBD____

Type: __TBD__ Dip Tank _______ Spray Sink

Maximum Operation: Hours/day __24________ Days/week __7__ Weeks/year _52________

2) Solvent Type (*Name and Manufacturer*): _____TBD
____
Attach MSDS for each solvent used.
Maximum Amount Used: _____________ Gallons/hour ______________ Gallons/year
Maximum Volatility at 100 ˚F: ________ mm Hg

3) Equipment Design: Is the degreaser equipped with:

Tank Cover: _X_______ Yes __ No

Agitation: ___ Yes _X_______ No

Drainage Board: _X_Yes __No

If yes, check the type:

If yes, check the type: _X__Internal __External

___ Pumped ___ Air

Drainage Return (if external): ___ Yes ___ No

___ Mechanical ___ Ultrasonic

Is solvent sprayed? ___ Yes ___ No

Heating: ___ Yes ___ No

Spray Pressure ______________ psi

If heated, give temperature: _________ ˚F

4) OPERATING PROCEDURE
Can degreaser be closed during degreaser operation? _X__ Yes ___ No

Is degreaser cover closed when degreaser is not in use? __X_ Yes ___ No

Are parts dry before removal from drying rack? __X_ Yes ___ No

How are waste solvent and sludge disposed of? Selected vendor service units

5) INDICATE THE TYPE OF CONTROL DEVICES (*if any*):
__ Refrigerated __ Carbon Adsorption __ Water Spray __ Freeboard Ratio 0.7
Other (*specify*): ____

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DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Cold Cleaning Degreasers					
CCD1	Cold Solvent Parts Cleaner	VOC	401 KAR 59:185	Equipment Standards	Vendor supplied material data sheets, Periodic Inspections and Employee training

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Cold Cleaning Degreasers					
CCD1	Cold Solvent Parts Cleaner	VOC	401 KAR 59:185	Proper Operations	Vendor supplied material data sheets, Periodic Inspections and Employee training. Maintain records of inspections and training.

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Recorded[9]	Description of Recordkeeping[10]
Cold Cleaning Degreasers					
CCD1	Cold Solvent Parts Cleaner	VOC	401 KAR 59:185	Inspection findings, employee training	Records of vendor will be maintained for five years on site. Inspection records and findings, Training records of which employee trained shall be maintaine on site

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Cold Cleaning Degreasers					
CCD1	Cold Solvent Parts Cleaner	VOC	401 KAR 59:185	None	None required

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Cold Cleaning Degreasers					
CCD1	Cold Solvent Parts Cleaner	VOC	401 KAR 59:185	None	None

Emission Unit
Slag/Fine Landfill

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log #

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]: Hourly Operating Rate (lbs/hr)	Maximum Operating Parameters: Annual Operating Hours (hrs/yr)	Permitted Operating Parameters: Hourly Operating Rate (tons/hr)	Permitted Operating Parameters: Annual Operating Rate (tons/yr)	Permitted Operating Parameters: Annual Operating Hours (hrs/yr)
26	Slag/Fines Landfill *Emission Unit(s) Controlled:*	39,169 lb/hr course 13,914 lb/hr fine slag generation	8,760	26.540	232,490	8,760

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors: Pollutant	Emission Factors: Emission Factor (lb/ton)	Emission Factors: Emission Factor Basis	Control Equipment: Control Equipment Association	Control Equipment: Pollutant Overall Efficiency (%)	Hourly (lb/hr) Emissions: Uncontrolled Unlimited Potential	Hourly (lb/hr) Emissions: Controlled Limited Potential	Hourly (lb/hr) Emissions: Allowable	Annual (tons/yr) Emissions: Uncontrolled Unlimited Potential	Annual (tons/yr) Emissions: Controlled Limited Potential	Annual (tons/yr) Emissions: Allowable
26	PM/PM10	0.033	KYDAQ/MRI	Wet Suppression Compaction	90.00%	0.8758	0.0876		3.84	0.38	

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Applicable Requirement, Standard, Restriction, Limitation, or Exemption(5)	Method of Determining Compliance with the Emission and Operating Requirement(s)(6)
Slag/Fines Land Fill					
Fugitive Emission Sources:					
26 (Fugitive)	Slag/Fines Landfill	PM/PM10	401 KAR 63:010	No visible emissions crossing the property line	Maintain monthly records of ash transferred to storage pile.
			401 KAR 51:017	BACT	Perform periodic visual surveys

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Slag/Fines Land fill					
Fugitive Emission Sources:					
26	Slag/fines land fill	PM/PM10	401 KAR 59:010	Visible Emissions	Quarterly visual emissions survey
			401 KAR 51:017		

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Recorded(9)	Description of Recordkeeping(10)
Slag/Fines Land fill					
Fugitive Emission Sources:					
26	Slag/fines land fill	PM/PM10	401 KAR 59:010	Visible Emissions	A log book of visual observations will be maintained on site.
(Fugitive)			401 KAR 51:017		Records will be maintained for five years on site

APPLICANT NAME: Cash Creek Generation, LLC

DEP7007V
continued

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Slag/Fines Land fill					
Fugitive Emission Sources:					
26	Slag/Fines land fill	PM/PM10	401 KAR 59:010	Opacity	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
(Fugitive)			401 KAR 51:017		

APPLICANT NAME: Cash Creek Generation, LLC

DEP7007V
continued

SECTION V. TESTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Tested(13)	Description of Testing(14)
Slag/Fines Landfill					
Fugitive Emission Sources:					
26	Slag/Fines Landfill	PM/PM10	401 KAR 63:010	Visible Emissions	Quarterly visual emissions survey
(Fugitive)			401 KAR 51:017		

Emission Unit
Roads
Paved & Unpaved

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007N

Emissions, Stacks, and Controls Information

DEP7007N (continued)

Applicant Name: Cash Creek Generation, L.L.C. Log # ______

SECTION I. Emissions Unit and Emission Point Information

KyEIS ID #	Emissions Unit and Emission Point Descriptions	Maximum Operating Parameters [Based on Max. Capacity of Processing Equipment]		Permitted Operating Parameters		
		Vehicle Miles Traveled (round trip miles)	Annual Operating Hours (hrs/yr)	Trips per day (Max)	Trips per hour	Annual Operating Hours (hrs/yr)
	Haul Road Truck Emissions Emission unit(s) uncontrolled:					
HR-P	Slag Transport to Pile - paved	0.79	8,760	24.00	1	8,760
HR-UP	Slag Transport to Pile - unpaved	0.79	8,760	24.00	1	8,760

SECTION I. Emission Units and Emission Point Information (continued)

KyEIS ID #	Emission Factors			Control Equipment		Hourly (lb/hr) Emissions			Annual (tons/yr) Emissions		
	Pollutant	Emission Factor (lb/VMT)	Emission Factor Basis	Control Equipment Association	Pollutant Overall Efficiency (%)	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable	Uncontrolled Unlimited Potential	Controlled Limited Potential	Allowable
	PM/PM10	Lbs/VMT									
HR-P		0.06	AP-42 Section 13.2-2	wet supression, sweeping or other mitigative options	90.00%	0.0660	0.0066		0.28908	0.02891	
HR-UP		0.44	AP-42 Section 13.2-2	wet supression, sweeping or other mitigative options	90.00%	0.3910	0.0391		1.71258	0.17126	

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V

Applicable Requirements & Compliance Activities

APPLICANT NAME: Cash Creek Generation, LLC

SECTION I. EMISSION AND OPERATING STANDARD(S) AND LIMITATION(S)

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Applicable Requirement, Standard, Restriction, Limitation, or Exemption[5]	Method of Determining Compliance with the Emission and Operating Requirement(s)[6]
Haul Roads:					
Fugitive Emission Sources:					
HRP	Paved Haul Roads	PM/PM10	401 KAR 63:010	No visible emissions crossing the property line	Maintain mileage records of vehicles dedicated to the transport of various materials
(Fugitive)			401 KAR 51:017	BACT	Perform periodic visual surveys
HRUP	Unpaved Haul Roads	PM/PM10	401 KAR 63:010	No visible emissions crossing the property line	Maintain mileage records of vehicles dedicated to the transport of various materials
(Fugitive)			401 KAR 51:017	BACT	Perform periodic visual surveys

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION II. MONITORING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Monitored(7)	Description of Monitoring(8)
Fugitive Emission Sources:					
HRP (Fugitive)	Paved Haul Roads	PM/PM10	402 KAR 63:010		Quarterly visual emissions survey
			402 KAR 51:017	Number of Trucks and load type	Daily logs of dedicated vehicle usage, in miles and materials transported
HRUP (Fugitive)	Unpaved Haul Roads	PM/PM10	402 KAR 63:010		Quarterly visual emissions survey
			402 KAR 51:017	Number of Trucks and load type	Daily logs of dedicated vehicle usage, in miles and materials transported

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION III. RECORDKEEPING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Recorded[9]	Description of Recordkeeping[10]
Haul Roads:					
Fugitive Emission Sources:					
HRP (Fugitive)	Paved Haul Roads	PM/PM10	402 KAR 63:010	Treatment	A log book of visual observations made and dust remediation procedures untaken, will be maintained on site
			402 KAR 51:017	Visible Emissions	Records of road sweeping will be maintained for five years on site
HRUP (Fugitive)	Unpaved Haul Roads	PM/PM10	402 KAR 63:010	Treatment	A log book of visual observations made and dust remediation procedures untaken, will be maintained on site
			402 KAR 51:017	Visible Emissions	Records of road sweeping will be maintained for five years on site

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION IV. REPORTING REQUIREMENTS

KYEIS No.(1)	Emission Unit Description(2)	Contaminant(3)	Origin of Requirement or Standard(4)	Parameter Reported(11)	Description of Reporting(12)
Haul Roads:					
Fugitive Emission Sources:					
HRP	Paved Haul Roads	PM/PM10	401 KAR 63:010	Opacity	
(Fugitive)			401 KAR 51:017	Visible Emission Survey	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.
HRUP	Unpaved Haul Roads	PM/PM10	401 KAR 63:010	Opacity	
(Fugitive)			401 KAR 51:017	Visible Emission Survey	Submit, semi-annually, all required monitoring reports per 401 KAR 50:035 Sect.4. The report shall contain all instances of deviation from the standard, duration of the deviation and any remedial action taken to correct the deficiency.

DEP7007V
continued

APPLICANT NAME: Cash Creek Generation, LLC

SECTION V. TESTING REQUIREMENTS

KYEIS No.[1]	Emission Unit Description[2]	Contaminant[3]	Origin of Requirement or Standard[4]	Parameter Tested[13]	Description of Testing[14]
Haul Roads					
Fugitive Emission Sources:					
HRP	Paved Haul Roads	PM/PM10	401 KAR 63:010	Visible Emissions	Quarterly visual emissions survey
(Fugitive)			401 KAR 51:017		
HRUP	Unpaved Haul Roads	PM/PM10	401 KAR 63:010	Visible Emissions	Quarterly visual emissions survey
(Fugitive)			401 KAR 51:017		

Insignificant Activities

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007DD

INSIGNIFICANT ACTIVITIES

INSIGNIFICANT ACTIVITY CRITERIA

1. Emissions from insignificant activities shall be counted toward the source's potential to emit;
2. Emissions from the activity shall not be subject to a federally enforceable requirement other than generally applicable requirements that apply to all activities and affected facilities such as 401 KAR 59:010, 61:020, 63:010, and others deemed generally applicable by the Cabinet;
3. The potential to emit a regulated air pollutant from the activity or affected facility shall not exceed 5 tons/yr.
4. The potential to emit of a hazardous air pollutant from the activity or affected facility shall not exceed 1,000 pounds/yr., or the deminimis level established under Section 112(g) of the Act, whichever is less;
5. The activity shall be included in the permit application, identifying generally applicable and state origin requirements.

Description of Activity Including Rated Capacity	Generally Applicable Regulations Or State Origin Requirements	Does the Activity meet the Insignificant Activity Criteria Listed Above?
Cold Solvent Parts Cleaners	401 KAR 59:0185	PTE < 5 tpy, HAP emissions < 1000 lb/yr
Diesel Fuel Storage Tanks	401 KAR 59:050 (exempt)	PTE < 5 tpy, HAP emissions < 1000 lb/yr
Unpaved Roadways	401 KAR 63:010	PTE < 5 tpy, HAP emissions < 1000 lb/yr
Paved Roadways	401 KAR 63:010	PTE < 5 tpy, HAP emissions < 1000 lb/yr
Miscellaneous Water Tanks	None	Yes
Maintenance Activities	None	Yes
2.35 MMBtu Auxiliary Boiler	401 KAR 50:015	PTE < 5 tpy, HAP emissions < 1000 lb/yr
Dead Coal Storage Pile	401 KAR 63:010	PTE < 5 tpy, HAP emissions < 1000 lb/yr
Slag/Fines Landfill	401 KAR 63:010	PTE < 5 tpy, HAP emissions < 1000 lb/yr

SIGNATURE BLOCK

I, THE UNDERSIGNED, HEREBY CERTIFY UNDER PENALTY OF LAW, THAT I AM A RESPONSIBLE OFFICIAL, AND THAT I HAVE PERSONALLY EXAMINED, AND AM FAMILIAR WITH, THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ITS ATTACHMENTS. BASED ON MY INQUIRY OF THOSE INDIVIDUALS WITH PRIMARY RESPONSIBILITY FOR OBTAINING THE INFORMATION, I CERTIFY THAT THE INFORMATION IS ON KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE OR INCOMPLETE INFORMATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT.

BY ______________________________ ____/____/____
Authorized Signature Date

Mr. Micheal L. McInnis as Manager of Cash Creek Generation, LLC Manager
Typed or Printed Name of Signatory Title of Signatory

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NOx Budget Permit Application

NOx Budget Permit Application

This submission is: **New** **Revised**

STEP 1
Identify the source by plant name, State, and ORIS or facility code

Cash Creek Generation, LLC	KY	
Plant Name	State	ORIS/Facility Code 56107

STEP 2
Enter the unit ID# for each NOx budget unit

Unit ID#
CT/HRSG #1
CT/HRSG #2

STEP 3
- **Read the standard requirements**
- **Enter the name of the NOx authorized account representative**
- **NOx authorized account representative's signature and date signed**

STANDARD REQUIREMENTS

Kentucky Administrative Regulations

401 KAR 51:001.	Definitions for 401 KAR Chapter 51.
401 KAR 51:160.	NOx requirements for large utility and industrial boilers.
401 KAR 51:170.	NOx requirements for cement kilns.
401 KAR 51:180.	NOx credits for early reduction and emergency.
401 KAR 51:190.	Banking and trading NOx allowances.
401 KAR 51:195	NOx opt-in provisions.

Liability

(1) Any person who knowingly violates a requirement or prohibition of the NOx Budget Trading Program or a NOx Budget permit shall be subject to enforcement pursuant to applicable State or Federal law.
(2) Any person who knowingly makes a false material statement in any record, submission, or report under the NOx Budget Trading Program shall be subject to criminal enforcement pursuant to the applicable State or Federal law.
(3) No permit revision shall excuse any violation of the requirements of the NOx Budget Trading Program that occurs prior to the date that the revision takes effect.
(4) Each NOx Budget source and each NOx Budget unit shall meet the requirements of the NOx Budget Trading Program.

Liability **(continued)**

(5) Any provision of the NOx Budget Trading Program that applies to a NOx Budget source or the NOx authorized account representative of a NOx Budget source shall also apply to the owners and operators of such source and of the NOx Budget units at the source.
(6) Any provision of the NOx Budget Trading Program that applies to a NOx Budget unit or the NOx authorized account representative of a NOx budget unit shall also apply to the owners and operators of such unit. Except with regard to the requirements applicable to units with a common stack under subpart H of 40 CFR Part 96, the owners and operators and the NOx authorized account representative of one NOx Budget unit shall not be liable for any violation by any other NOx Budget unit of which they are not owners or operators or the NOx authorized account representative and that is located at a source of which they are not owners or operators or the NOx authorized account representative.

Effect on Other Authorities.

No provision of the NOx Budget Trading Program, a NOx Budget permit application, a NOx Budget permit, or an exemption under 401 KAR 51:160, Section 2, shall be construed as exempting or excluding the owners and operators and, to the extent applicable, the NOx authorized account representative of a NOx Budget source or NOx Budget unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.

Certification

I am authorized to make this submission on behalf of the owners and operators of the NOx Budget sources or NOx Budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name: **Mike McInnis as Manager for Cash Creek Generation L.L.C.**	
Signature	Date

STEP 4 (For sources with opt-in units only)

For each unit listed under Step 2 that is an opt-in unit, re-enter the unit ID#, and indicate if this is an initial permit application for that unit by checking the box

Unit ID#	Check box if initial permit application

Step 5 (For sources with opt-in units only)

- **Read the certification**
- **Enter the name of the NOx authorized account representative**
- **NOx authorized account representative's signature and date signed**

I certify that each unit for which this permit application is submitted under 401 KAR 51:195 is not a NOx Budget unit under Kentucky's NOx SIP and is not covered by an exemption under 401 KAR 51:160, Section 2 that is in effect.

Name **Mike McInnis as Manager for Cash Creek Generation L.L.C.**	
Signature	Date

Cash Creek Generation, LLC Plant Name (from Step 1)	NOx Budget Permit Application Page 3

FORM DEP 7007EE

STEP 6 (For sources submitting an initial NOx Budget opt-in permit application)

- **Read the certification**
- **Enter the name of the NOx authorized account representative**
- **NOx authorized account representative's signature and date signed**

I certify that each unit for which this permit application is submitted under 401 KAR 51:160 is operating, as that term is defined in 401 KAR 51:001, Section 1(126).

Name **Mike McInnis as Manager for Cash Creek Generation L.L.C.**	
Signature	Date

100% LOAD SYNGAS COMBUSTION TURBINES

Process or Emission Point	Type or Mate	Capacity	Units		
HRSG 1					
and		13717131	scfh	13.72	MMscf/hr
HRSG 2		3,443.00	MMBtu/hr		
Assumptions:					
Syn Gas Heat Content		251	Btu/cf		
TPY Emissions are based on 8,760 hours per year					

	Emission Factor		Emission Factor Source	Control %	Un-Controlled Emissions lb/hr	Un-Controlled Emissions tpy	Controlled Emissions lb/hr	Controlled Emissions tpy
CO	0.036	lb/MMBtu	BACT		123.95	542.89	123.95	542.89
VOC	0.006	lb/MMBtu	BACT		20.66	90.48	20.66	90.48
NO_X	0.058	lb/MMBtu	BACT		199.69	874.66	199.69	874.66
$PM_{10\ Filterable}$	0.007	lb/MMBtu	BACT	99.9%	24101.00	105562.38	24.10	105.56
SO_2	0.043	lb/MMBtu	BACT	99.25%	19857.30	86974.98	148.05	648.45
H_2SO_4	0.0049	lb/MMBtu	BACT		16.87	73.89	16.87	73.89
Metallic HAPs								
Antimony	8.37E-07	lb/MMBtu	AP42 Table 1.1-18		2.88E-03	1.26E-02	2.88E-03	1.26E-02
Arsenic	2.00E-07	lb/MMBtu	Design		6.89E-04	3.02E-03	6.89E-04	3.02E-03
Beryllium	2.00E-07	lb/MMBtu	Design		6.89E-04	3.02E-03	6.89E-04	3.02E-03
Cadmium	4.50E-07	lb/MMBtu	Design		1.55E-03	6.79E-03	1.55E-03	6.79E-03
Chromium	3.50E-06	lb/MMBtu	Design		1.21E-02	5.28E-02	1.21E-02	5.28E-02
Cobalt	4.65E-06	lb/MMBtu	AP42 Table 1.1-18		1.60E-02	7.01E-02	1.60E-02	7.01E-02
Manganese	1.00E-05	lb/MMBtu	Design		3.44E-02	1.51E-01	3.44E-02	1.51E-01
Mercury	3.94E-06	lb/MMBtu	Design	95%	2.71E-01	1.19E+00	1.36E-02	5.94E-02
Nickel	3.94E-06	lb/MMBtu	Design		1.36E-02	5.94E-02	1.36E-02	5.94E-02
Selenium	3.94E-06	lb/MMBtu	Design		1.36E-02	5.94E-02	1.36E-02	5.94E-02
Lead	1.03E-06	lb/MMBtu	Design		3.55E-03	1.55E-02	3.55E-03	1.55E-02
Organic HAPs								
Acenaphthylene	2.50E-07	lb/MMBtu	DOE		8.61E-04	3.77E-03	8.61E-04	3.77E-03
Benz(a)anthracene	2.30E-09	lb/MMBtu	DOE		7.92E-06	3.47E-05	7.92E-06	3.47E-05
Benzene	2.00E-05	lb/MMBtu	Design		6.89E-02	3.02E-01	6.89E-02	3.02E-01
Benzo(a)pyrene	5.60E-09	lb/MMBtu	DOE		1.93E-05	8.44E-05	1.93E-05	8.44E-05
Benzo(g,h,i)perylene	9.60E-09	lb/MMBtu	DOE		3.31E-05	1.45E-04	3.31E-05	1.45E-04
Formaldehyde	1.70E-05	lb/MMBtu	DOE		5.85E-02	2.56E-01	5.85E-02	2.56E-01
Naphthalene	4.00E-07	lb/MMBtu	DOE		1.38E-03	6.03E-03	1.38E-03	6.03E-03
PAH**	ND	lb/MMBtu	DOE		ND	ND	ND	ND
Toluene	3.30E-06	lb/MMBtu	DOE		1.14E-02	4.98E-02	1.14E-02	4.98E-02
Acid Gases HAPs								
HF (assume all Fluorides are HF)	3.00E-05	lb/MMBtu	DOE		1.03E-01	4.52E-01	1.03E-01	4.52E-01
HCl (assume all Chlorides are HCl)	6.00E-04	lb/MMBtu	DOE		2.07E+00	9.05E+00	2.07E+00	9.05E+00

NOTES:

ND = No Data Available

***** PAH pollutants are given individually for the CTs when firing syngas***

CASH CREEK GENERATING STATION
75% LOAD SYNGAS COMBUSTION TURBINES

Process or Emission Point	Type or Mat(	Capacity	Units		
HRSG 1					
and		11259277	scfh	11.26	MMscf/hr
HRSG 2		2,826.08	MMBtu/hr		
Assumptions:					
Syn Gas Heat Content		251	Btu/cf		
TPY Emissions are based on 8,760 hours per year					

	Emission Factor		Emission Factor Source	Control %	Un-Controlled Emissions lb/hr	Un-Controlled Emissions tpy	Controlled Emissions lb/hr	Controlled Emissions tpy
CO	0.036	lb/MMBtu	BACT		1.02E+02	4.46E+02	1.02E+02	445.62
VOC	0.006	lb/MMBtu	BACT		1.70E+01	7.43E+01	1.70E+01	74.27
NO_X	0.058	lb/MMBtu	BACT		1.64E+02	7.18E+02	1.64E+02	717.94
$PM_{10\ Filterable}$	0.007	lb/MMBtu	BACT	99.9%	1.98E+04	8.66E+04	1.98E+01	86.65
SO_2	0.043	lb/MMBtu	BACT	99.25%	1.63E+04	7.14E+04	1.22E+02	532.26
H_2SO_4	0.0049	lb/MMBtu	BACT		1.38E+01	6.07E+01	1.38E+01	60.65
Metallic HAPs								
Antimony	8.37E-07	lb/MMBtu	AP42 Table 1.1-18		2.37E-03	1.04E-02	2.37E-03	1.04E-02
Arsenic	2.00E-07	lb/MMBtu	Design		5.65E-04	2.48E-03	5.65E-04	2.48E-03
Beryllium	2.00E-07	lb/MMBtu	Design		5.65E-04	2.48E-03	5.65E-04	2.48E-03
Cadmium	4.50E-07	lb/MMBtu	Design		1.27E-03	5.57E-03	1.27E-03	5.57E-03
Chromium	3.50E-06	lb/MMBtu	Design		9.89E-03	4.33E-02	9.89E-03	4.33E-02
Cobalt	4.65E-06	lb/MMBtu	AP42 Table 1.1-18		1.31E-02	5.76E-02	1.31E-02	5.76E-02
Manganese	1.00E-05	lb/MMBtu	Design		2.83E-02	1.24E-01	2.83E-02	1.24E-01
Mercury	3.94E-06	lb/MMBtu	Design	95%	2.23E-01	9.75E-01	1.11E-02	4.88E-02
Nickel	3.94E-06	lb/MMBtu	Design		1.11E-02	4.88E-02	1.11E-02	4.88E-02
Selenium	3.94E-06	lb/MMBtu	Design		1.11E-02	4.88E-02	1.11E-02	4.88E-02
Lead	1.03E-06	lb/MMBtu	Design		2.91E-03	1.27E-02	2.91E-03	1.27E-02
Organic HAPs								
Acenaphthylene	2.50E-07	lb/MMBtu	DOE		7.07E-04	3.09E-03	7.07E-04	3.09E-03
Benz(a)anthracene	2.30E-09	lb/MMBtu	DOE		6.50E-06	2.85E-05	6.50E-06	2.85E-05
Benzene	2.00E-05	lb/MMBtu	Design		5.65E-02	2.48E-01	5.65E-02	2.48E-01
Benzo(a)pyrene	5.60E-09	lb/MMBtu	DOE		1.58E-05	6.93E-05	1.58E-05	6.93E-05
Benzo(g,h,i)perylene	9.60E-09	lb/MMBtu	DOE		2.71E-05	1.19E-04	2.71E-05	1.19E-04
Formaldehyde	1.70E-05	lb/MMBtu	DOE		4.80E-02	2.10E-01	4.80E-02	2.10E-01
Naphthalene	4.00E-07	lb/MMBtu	DOE		1.13E-03	4.95E-03	1.13E-03	4.95E-03
PAH*	ND	lb/MMBtu	DOE		ND	ND	ND	ND
Toluene	3.30E-06	lb/MMBtu	DOE		9.33E-03	4.08E-02	9.33E-03	4.08E-02
Acid Gases HAPs								
HF (assume all Fluorides are HF)	3.00E-05	lb/MMBtu	DOE		8.48E-02	3.71E-01	8.48E-02	3.71E-01
HCl (assume all Chlorides are HCl)	6.00E-04	lb/MMBtu	DOE		1.70E+00	7.43E+00	1.70E+00	7.43E+00

NOTES:

ND = No Data Available

***** PAH pollutants are given individually for the CTs when firing syngas***

CASH CREEK GENERATING STATION
50% LOAD SYNGAS COMBUSTION TURBINES

Process or Emission Point	Type or Mate	Capacity	Units					
HRSG 1								
and		8553992	scfh		8.55	MMscf/hr		
HRSG 2		2,147.05	MMBtu/hr					
Assumptions:								
Syn Gas Heat Content		251	Btu/cf					
TPY Emissions are based on 8,760 hours per year								

	Emission Facctor	Units	Emission Factor Source	Control %	Un-Controlled Emissions lb/hr	Un-Controlled Emissions tpy	Controlled Emissions lb/hr	Controlled Emissions tpy
CO	0.036	lb/MMBtu	BACT		7.73E+01	3.39E+02	7.73E+01	338.55
VOC	0.006	lb/MMBtu	BACT		1.29E+01	5.64E+01	1.29E+01	56.42
NO_X	0.058	lb/MMBtu	BACT		1.25E+02	5.45E+02	1.25E+02	545.44
$PM_{10\ Filterable}$	0.007	lb/MMBtu	BACT	99.9%	1.50E+04	6.58E+04	1.50E+01	65.83
SO_2	0.043	lb/MMBtu	BACT	99.25%	1.24E+04	5.42E+04	9.23E+01	404.38
H_2SO_4	0.0049	lb/MMBtu	BACT		1.05E+01	4.61E+01	1.05E+01	46.08
Metallic HAPs								
Antimony	8.37E-07	lb/MMBtu	AP42 Table 1.1-18		1.80E-03	7.87E-03	1.80E-03	7.87E-03
Arsenic	2.00E-07	lb/MMBtu	Design		4.29E-04	1.88E-03	4.29E-04	1.88E-03
Beryllium	2.00E-07	lb/MMBtu	Design		4.29E-04	1.88E-03	4.29E-04	1.88E-03
Cadmium	4.50E-07	lb/MMBtu	Design		9.66E-04	4.23E-03	9.66E-04	4.23E-03
Chromium	3.50E-06	lb/MMBtu	Design		7.51E-03	3.29E-02	7.51E-03	3.29E-02
Cobalt	4.65E-06	lb/MMBtu	AP42 Table 1.1-18		9.98E-03	4.37E-02	9.98E-03	4.37E-02
Manganese	1.00E-05	lb/MMBtu	Design		2.15E-02	9.40E-02	2.15E-02	9.40E-02
Mercury	3.94E-06	lb/MMBtu	Design	95%	1.69E-01	7.41E-01	8.46E-03	3.71E-02
Nickel	3.94E-06	lb/MMBtu	Design		8.46E-03	3.71E-02	8.46E-03	3.71E-02
Selenium	3.94E-06	lb/MMBtu	Design		8.46E-03	3.71E-02	8.46E-03	3.71E-02
Lead	1.03E-06	lb/MMBtu	Design		2.21E-03	9.69E-03	2.21E-03	9.69E-03
Organic HAPs								
Acenaphthylene	2.50E-07	lb/MMBtu	DOE		5.37E-04	2.35E-03	5.37E-04	2.35E-03
Benz(a)anthracene	2.30E-09	lb/MMBtu	DOE		4.94E-06	2.16E-05	4.94E-06	2.16E-05
Benzene	2.00E-05	lb/MMBtu	Design		4.29E-02	1.88E-01	4.29E-02	1.88E-01
Benzo(a)pyrene	5.60E-09	lb/MMBtu	DOE		1.20E-05	5.27E-05	1.20E-05	5.27E-05
Benzo(g,h,i)perylene	9.60E-09	lb/MMBtu	DOE		2.06E-05	9.03E-05	2.06E-05	9.03E-05
Formaldehyde	1.70E-05	lb/MMBtu	DOE		3.65E-02	1.60E-01	3.65E-02	1.60E-01
Naphthalene	4.00E-07	lb/MMBtu	DOE		8.59E-04	3.76E-03	8.59E-04	3.76E-03
PAH**	ND	lb/MMBtu	DOE		ND	ND	ND	ND
Toluene	3.30E-06	lb/MMBtu	DOE		7.09E-03	3.10E-02	7.09E-03	3.10E-02
Acid Gases HAPs								
HF (assume all Fluorides are HF)	3.00E-05	lb/MMBtu	DOE		6.44E-02	2.82E-01	6.44E-02	2.82E-01
HCl (assume all Chlorides are HCl)	6.00E-04	lb/MMBtu	DOE		1.29E+00	5.64E+00	1.29E+00	5.64E+00

NOTES:

ND = No Data Available
***** PAH pollutants are given individually for the CTs when firing syngas***

100% LOAD SYNGAS COMBUSTION TURBINES

Process or Emission Point	Type or Mate	Capacity	Units		
HRSG 1					
and		13717131	scfh	13.72	MMscf/hr
HRSG 2		3,443.00	MMBtu/hr		
Assumptions:					
Syn Gas Heat Content		251	Btu/cf		

TPY Emissions are based on 7,860 hours per year

	Emission Factor		Emission Factor Source	Control %	Un-Controlled Emissions lb/hr	Un-Controlled Emissions tpy	Controlled Emissions lb/hr	Controlled Emissions tpy
CO	0.036	lb/MMBtu	BACT		1.24E+02	4.87E+02	1.24E+02	487.12
VOC	0.006	lb/MMBtu	BACT		2.07E+01	8.12E+01	2.07E+01	81.19
NO_X	0.058	lb/MMBtu	BACT		2.00E+02	7.85E+02	2.00E+02	784.80
$PM_{10\ Filterable}$	0.007	lb/MMBtu	BACT	99.9%	2.41E+04	9.47E+04	2.41E+01	94.72
SO_2	0.043	lb/MMBtu	BACT	99.25%	1.99E+04	7.80E+04	1.48E+02	581.83
H_2SO_4	0.0049	lb/MMBtu	BACT		1.69E+01	6.63E+01	1.69E+01	66.30
Metallic HAPs								
Antimony	8.37E-07	lb/MMBtu	AP42 Table 1.1-18		2.88E-03	1.13E-02	2.88E-03	1.13E-02
Arsenic	2.00E-07	lb/MMBtu	Design		6.89E-04	2.71E-03	6.89E-04	2.71E-03
Beryllium	2.00E-07	lb/MMBtu	Design		6.89E-04	2.71E-03	6.89E-04	2.71E-03
Cadmium	4.50E-07	lb/MMBtu	Design		1.55E-03	6.09E-03	1.55E-03	6.09E-03
Chromium	3.50E-06	lb/MMBtu	Design		1.21E-02	4.74E-02	1.21E-02	4.74E-02
Cobalt	4.65E-06	lb/MMBtu	AP42 Table 1.1-18		1.60E-02	6.29E-02	1.60E-02	6.29E-02
Manganesse	1.00E-05	lb/MMBtu	Design		3.44E-02	1.35E-01	3.44E-02	1.35E-01
Mercury	3.94E-06	lb/MMBtu	Design	95%	2.71E-01	1.07E+00	1.36E-02	5.33E-02
Nickle	3.94E-06	lb/MMBtu	Design		1.36E-02	5.33E-02	1.36E-02	5.33E-02
Selenium	3.94E-06	lb/MMBtu	Design		1.36E-02	5.33E-02	1.36E-02	5.33E-02
Lead	1.03E-06	lb/MMBtu	Design		3.55E-03	1.39E-02	3.55E-03	1.39E-02
Organic HAPs								
Acenaphthylene	2.50E-07	lb/MMBtu	DOE		8.61E-04	3.38E-03	8.61E-04	3.38E-03
Benz(a)anthracene	2.30E-09	lb/MMBtu	DOE		7.92E-06	3.11E-05	7.92E-06	3.11E-05
Benzene	2.00E-05	lb/MMBtu	Design		6.89E-02	2.71E-01	6.89E-02	2.71E-01
Benzo(a)pyrene	5.60E-09	lb/MMBtu	DOE		1.93E-05	7.58E-05	1.93E-05	7.58E-05
Benzo(g,h,i)perylene	9.60E-09	lb/MMBtu	DOE		3.31E-05	1.30E-04	3.31E-05	1.30E-04
Formaldehyde	1.70E-05	lb/MMBtu	DOE		5.85E-02	2.30E-01	5.85E-02	2.30E-01
Naphthalene	4.00E-07	lb/MMBtu	DOE		1.38E-03	5.41E-03	1.38E-03	5.41E-03
PAH**	ND	lb/MMBtu	DOE		ND	ND	ND	ND
Toluene	3.30E-06	lb/MMBtu	DOE		1.14E-02	4.47E-02	1.14E-02	4.47E-02
Acid Gases HAPs								
HF (assume all Fluorides are HF)	3.00E-05	lb/MMBtu	DOE		1.03E-01	4.06E-01	1.03E-01	4.06E-01
HCl (assume all Chlorides are HCl)	6.00E-04	lb/MMBtu	DOE		2.07E+00	8.12E+00	2.07E+00	8.12E+00

NOTES:

ND = No Data Available

***** PAH pollutants are given individually for the CTs when firing syngas***

100% LOAD NATURAL GAS COMBUSTION TURBINES

Process or Emission Point	Capacity	Units				
HRSG 1	**3130000**	**scfh**		**100% load capacity**		
and	3,130.00	MMBtu/hr		Need 10% less natural gas than syngas for equivalent output		
HRSG 2						
Assumptions						
Natural Gas Heat Content	1000	Btu/cf		Useful Tables Babcock and Wilcox Fuel Analysis - Natural Gas p57		

TPY Emissions are based on operating with natural gas for 900 hours per year

Emission Factors from USEPA's Compliance of Air Pollutant Emission Factors (AP42) Section 1.4 and 3.1

	Emission Factor		Emission Factor Source		Emissions lb/hr	Emissions tpy
CO	52.7	lb/MMscf	Vendor Information	GE	1.65E+02	74.26
VOC	5.5	lb/MMscf	AP42	1.4-2*	1.72E+01	7.75
NO_X	86.61	lb/MMscf	Vendor Information	GE	2.71E+02	122.00
PM_{10} Filterable	1.9	lb/MMscf	AP42	1.4-2*	5.95E+00	2.68
PM_{10} Condensable	5.7	lb/MMscf	AP42	1.4-2*	1.78E+01	8.03
SO_2	0.6	lb/MMscf	AP42	1.4-2	1.88E+00	0.85
Metallic HAPS						
Lead	0.00E+00	lb/MMscf	AP42		0.00E+00	0.00E+00
Organic HAPS						
1,3-Butadiene	4.39E-04	lb/MMscf	AP42	Table 3.1-3	1.37E-03	6.18E-04
Acetalhyde	4.08E-02	lb/MMscf	AP42	Table 3.1-3	1.28E-01	5.75E-02
Acrolein	6.53E-03	lb/MMscf	AP42	Table 3.1-3	2.04E-02	9.19E-03
Benzene	1.22E-02	lb/MMscf	AP42	Table 3.1-3	3.83E-02	1.72E-02
Ethyl Benzene	3.26E-02	lb/MMscf	AP42	Table 3.1-3	1.02E-01	4.60E-02
Formaldehyde	7.24E-01	lb/MMscf	AP42	Table 3.1-3	2.27E+00	1.02E+00
Naphthalene	1.33E-03	lb/MMscf	AP42	Table 3.1-3	4.15E-03	1.87E-03
* **PAH**	2.24E-03	lb/MMscf	AP42	Table 3.1-3	7.02E-03	3.16E-03
Propylene Oxide	2.96E-02	lb/MMscf	AP42	Table 3.1-3	9.26E-02	4.17E-02
Toluene	1.33E-01	lb/MMscf	AP42	Table 3.1-3	4.15E-01	1.87E-01
Xylene	6.53E-02	lb/MMscf	AP42	Table 3.1-3	2.04E-01	9.19E-02

* As a conservative assumption the AP42 emission factors for natural gas fired boilers was used

75% LOAD NATURAL GAS COMBUSTION TURBINES

	Capacity	Units	
HRSG 1	**2569162**	**scfh**	
and	2,569.16	MMBtu/hr	Need 10% less natural gas than syngas for equivalent output
HRSG 2			
Assumptions			
Natural Gas Heat Content	1000	Btu/cf	Useful Tables Babcock and Wilcox Fuel Analysis - Natural Gas p57

TPY Emissions are based on operating with natural gas for 900 hours per year

Emission Factors from USEPA's Compliance of Air Pollutant Emission Factors (AP42) Section 1.4

	Emission Factor		Emission Factor Source		Emissions lb/hr	Emissions tpy
CO	52.7	lb/MMscf	AP42	Table 1.4-1	1.35E+02	6.10E+01
VOC	5.5	lb/MMscf	AP42	Table 1.4-2	1.41E+01	6.36E+00
NO_X	86.6	lb/MMscf	AP42	Table 1.4-1	2.23E+02	1.00E+02
$PM_{10\ Filterable}$	1.9	lb/MMscf	AP42	Table 1.4-2	4.88E+00	2.20E+00
$PM_{10\ Condensable}$	5.7	lb/MMscf	AP42	Table 1.4-2	1.46E+01	6.59E+00
SO_2	0.6	lb/MMscf	AP42	Table 1.4-2	1.54E+00	6.94E-01

Organic HAPS						
1,3-Butadiened	4.39E-04	lb/MMscf	AP42	Table 1.4-3	1.13E-03	5.07E-04
Acetaldehyde	4.08E-02	lb/MMscf	AP42	Table 1.4-3	1.05E-01	4.72E-02
Acrolein	6.53E-03	lb/MMscf	AP42	Table 1.4-3	1.68E-02	7.55E-03
Benzene	1.22E-02	lb/MMscf	AP42	Table 1.4-3	3.14E-02	1.42E-02
Ethylbenzene	3.26E-02	lb/MMscf	AP42	Table 1.4-3	8.39E-02	3.77E-02
Formaldehyde	7.24E-01	lb/MMscf	AP42	Table 1.4-3	1.86E+00	8.37E-01
Naphthalene	1.33E-03	lb/MMscf	AP42	Table 1.4-3	3.41E-03	1.53E-03
PAH	2.24E-03	lb/MMscf	AP42	Table 1.4-3	5.77E-03	2.59E-03
Propylene Oxided	2.96E-02	lb/MMscf	AP42	Table 1.4-3	7.60E-02	3.42E-02
Toluene	1.33E-01	lb/MMscf	AP42	Table 1.4-3	3.41E-01	1.53E-01
Xylene	6.53E-02	lb/MMscf	AP42	Table 1.4-3	1.68E-01	7.55E-02

50% LOAD NATURAL GAS COMBUSTION TURBINES

	Capacity	Units	
HRSG 1	**1951866**	**scfh**	
and	1,951.87	MMBtu/hr	Need 10% less natural gas than syngas for equivalent output
HRSG 2			
Assumptions			
Natural Gas Heat Content	1000	Btu/cf	Useful Tables Babcock and Wilcox Fuel Analysis - Natural Gas p57

TPY Emissions are based on operating with natural gas for 900 hours per year

Emission Factors from USEPA's Compliance of Air Pollutant Emission Factors (AP42) Section 1.4

	Emission Factor		Emission Factor Source		Emissions lb/hr	Emissions tpy
CO	52.7	lb/MMscf	GE	Table 1.4-1	1.03E+02	4.63E+01
VOC	5.5	lb/MMscf	AP42	Table 1.4-2	1.07E+01	4.83E+00
NO_X	86.6	lb/MMscf	GE	Table 1.4-1	1.69E+02	7.61E+01
$PM_{10\ Filterable}$	1.9	lb/MMscf	AP42	Table 1.4-2	3.71E+00	1.67E+00
$PM_{10\ Condensable}$	5.7	lb/MMscf	AP42	Table 1.4-2	1.11E+01	5.01E+00
SO_2	0.6	lb/MMscf	AP42	Table 1.4-2	1.17E+00	5.27E-01
Organic HAPS						
1,3-Butadiened	4.39E-04	lb/MMscf	AP42	Table 3.1-3	8.56E-04	3.85E-04
Acetaldehyde	4.08E-02	lb/MMscf	AP42	Table 3.1-3	7.96E-02	3.58E-02
Acrolein	6.53E-03	lb/MMscf	AP42	Table 3.1-3	1.27E-02	5.73E-03
Benzene	1.22E-02	lb/MMscf	AP42	Table 3.1-3	2.39E-02	1.08E-02
Ethylbenzene	3.26E-02	lb/MMscf	AP42	Table 3.1-3	6.37E-02	2.87E-02
Formaldehyde	7.24E-01	lb/MMscf	AP42	Table 3.1-3	1.41E+00	6.36E-01
Naphthalene	1.33E-03	lb/MMscf	AP42	Table 3.1-3	2.59E-03	1.16E-03
PAH	2.24E-03	lb/MMscf	AP42	Table 3.1-3	4.38E-03	1.97E-03
Propylene Oxided	2.96E-02	lb/MMscf	AP42	Table 3.1-3	5.77E-02	2.60E-02
Toluene	1.33E-01	lb/MMscf	AP42	Table 3.1-3	2.59E-01	1.16E-01
Xylene	6.53E-02	lb/MMscf	AP42	Table 3.1-3	1.27E-01	5.73E-02

FLARE NATURAL GAS PILOT EMISSIONS

Process or Emission Point	Type or Mate	Capacity	Units			
Flare 3 pilots	natural gas	255	scfh			
		0.26	MMBtu/hr			

Assumptions
Natural Gas Heat Content — **1000 Btu/cf** — **Useful Tables Babcock and Wilcox Fuel Analysis - p57**
TPY Emissions are based on 8,760 hours per year
Emission Factors from USEPA's Compliance of Air Pollutant Emission Factors (AP42) Section 1.4

	Emission Factor		Emission Factor Source		Emissions lb/hr	Emissions tpy
CO	84	lb/MMscf	AP42	Table 1.4-1	2.14E-02	0.094
VOC	5.5	lb/MMscf	AP42	Table 1.4-2	1.40E-03	0.006
NO_X	100	lb/MMscf	AP42	Table 1.4-1	2.55E-02	0.112
$PM_{10\ Filterable}$	1.9	lb/MMscf	AP42	Table 1.4-2	4.85E-04	0.002
$PM_{10\ Condensable}$	5.7	lb/MMscf	AP42	Table 1.4-2	1.45E-03	0.006
SO_2	0.6	lb/MMscf	AP42	Table 1.4-2	1.53E-04	0.000670
Metallic HAPS						
Arsenic	2.00E-04	lb/MMscf	AP42	Table 1.4-4	5.10E-08	2.23E-07
Beryllium	1.20E-05	lb/MMscf	AP42	Table 1.4-4	3.06E-09	1.34E-08
Cadmium	1.10E-03	lb/MMscf	AP42	Table 1.4-4	2.81E-07	1.23E-06
Chromium	1.40E-03	lb/MMscf	AP42	Table 1.4-4	3.57E-07	1.56E-06
Cobalt	8.40E-05	lb/MMscf	AP42	Table 1.4-4	2.14E-08	9.38E-08
Manganesse	3.80E-04	lb/MMscf	AP42	Table 1.4-4	9.69E-08	4.24E-07
Mercury	2.60E-04	lb/MMscf	AP42	Table 1.4-4	6.63E-08	2.90E-07
Nickle	2.10E-03	lb/MMscf	AP42	Table 1.4-4	5.36E-07	2.35E-06
Selenium	2.40E-05	lb/MMscf	AP42	Table 1.4-4	6.12E-09	2.68E-08
Lead	0.0005	lb/MMscf	AP42	Table 1.4-2	1.28E-07	5.58E-07
Organic HAPS						
2-Methylnaphthalene	2.40E-05	lb/MMscf	AP42	Table 1.4-3	6.12E-09	2.68E-08
3-Methylchloranthrene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf	AP42	Table 1.4-3	4.08E-09	1.79E-08
Acenaphthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Acenaphthylene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Anthracene	2.40E-06	lb/MMscf	AP42	Table 1.4-3	6.12E-10	2.68E-09
Benz(a)anthracene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Benzene	2.10E-03	lb/MMscf	AP42	Table 1.4-3	5.36E-07	2.35E-06
Benzo(a)pyrene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	3.06E-10	1.34E-09
Benzo(b)fluoranthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	3.06E-10	1.34E-09
Benzo(k)fluoranthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Chrysene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	3.06E-10	1.34E-09
Dichlorobenzene	1.20E-03	lb/MMscf	AP42	Table 1.4-3	3.06E-07	1.34E-06
Fluoranthene	3.00E-06	lb/MMscf	AP42	Table 1.4-3	7.65E-10	3.35E-09
Fluorene	2.80E-06	lb/MMscf	AP42	Table 1.4-3	7.14E-10	3.13E-09
Formaldehyde	7.50E-02	lb/MMscf	AP42	Table 1.4-3	1.91E-05	8.38E-05
Hexane	1.80E+00	lb/MMscf	AP42	Table 1.4-3	4.59E-04	2.01E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.59E-10	2.01E-09
Naphthalene	6.10E-04	lb/MMscf	AP42	Table 1.4-3	1.56E-07	6.81E-07
Phenanthrene	1.70E-05	lb/MMscf	AP42	Table 1.4-3	4.34E-09	1.90E-08
Pyrene	5.00E-06	lb/MMscf	AP42	Table 1.4-3	1.28E-09	5.58E-09
Toluene	3.40E-03	lb/MMscf	AP42	Table 1.4-3	8.67E-07	3.80E-06

FIRE PUMP EMISSIONS

Process or Emission Point	Type or Mate	Capacity	Units
Fire Pump - 3,500 gpm	natural gas	2.4	MMBtu/hr
		2400	scf/hr

Assumptions

Natural Gas Heat Content 1000 Btu/cf Useful Tables Babcock and Wilcox Fuel Analysis - p57

TPY Emissions are based on 500 hours per year

Emission Factors from USEPA's Compliance of Air Pollutant Emission Factors (AP42) Section 1.4

	Emission Factor		Emission Factor Source		Emissions lb/hr	Emissions tpy
CO	84	lb/MMscf	AP42	Table 1.4-1	0.20160	0.05040
VOC	5.5	lb/MMscf	AP42	Table 1.4-2	0.01320	0.00330
NO_X	100	lb/MMscf	AP42	Table 1.4-1	0.24000	0.06000
$PM_{10\ Filterable}$	1.9	lb/MMscf	AP42	Table 1.4-2	0.00456	0.0011
$PM_{10\ Condensable}$	5.7	lb/MMscf	AP42	Table 1.4-2	0.01368	0.0034
SO_2	0.6	lb/MMscf	AP42	Table 1.4-2	0.00144	0.00036
Metallic HAPS						
Arsenic	2.00E-04	lb/MMscf	AP42	Table 1.4-4	4.80E-07	1.20E-07
Beryllium	1.20E-05	lb/MMscf	AP42	Table 1.4-4	2.88E-08	7.20E-09
Cadmium	1.10E-03	lb/MMscf	AP42	Table 1.4-4	2.64E-06	6.60E-07
Chromium	1.40E-03	lb/MMscf	AP42	Table 1.4-4	3.36E-06	8.40E-07
Cobalt	8.40E-05	lb/MMscf	AP42	Table 1.4-4	2.02E-07	5.04E-08
Manganesse	3.80E-04	lb/MMscf	AP42	Table 1.4-4	9.12E-07	2.28E-07
Mercury	2.60E-04	lb/MMscf	AP42	Table 1.4-4	6.24E-07	1.56E-07
Nickle	2.10E-03	lb/MMscf	AP42	Table 1.4-4	5.04E-06	1.26E-06
Selenium	2.40E-05	lb/MMscf	AP42	Table 1.4-4	5.76E-08	1.44E-08
Lead	0.0005	lb/MMscf	AP42	Table 1.4-2	1.20E-06	3.00E-07
Organic HAPS						
2-Methylnaphthalene	2.40E-05	lb/MMscf	AP42	Table 1.4-3	5.76E-08	1.44E-08
3-Methylchloranthrene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf	AP42	Table 1.4-3	3.84E-08	9.60E-09
Acenaphthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Acenaphthylene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Anthracene	2.40E-06	lb/MMscf	AP42	Table 1.4-3	5.76E-09	1.44E-09
Benz(a)anthracene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Benzene	2.10E-03	lb/MMscf	AP42	Table 1.4-3	5.04E-06	1.26E-06
Benzo(a)pyrene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	2.88E-09	7.20E-10
Benzo(b)fluoranthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	2.88E-09	7.20E-10
Benzo(k)fluoranthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Chrysene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	2.88E-09	7.20E-10
Dichlorobenzene	1.20E-03	lb/MMscf	AP42	Table 1.4-3	2.88E-06	7.20E-07
Fluoranthene	3.00E-06	lb/MMscf	AP42	Table 1.4-3	7.20E-09	1.80E-09
Fluorene	2.80E-06	lb/MMscf	AP42	Table 1.4-3	6.72E-09	1.68E-09
Formaldehyde	7.50E-02	lb/MMscf	AP42	Table 1.4-3	1.80E-04	4.50E-05
Hexane	1.80E+00	lb/MMscf	AP42	Table 1.4-3	4.32E-03	1.08E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.32E-09	1.08E-09
Naphthalene	6.10E-04	lb/MMscf	AP42	Table 1.4-3	1.46E-06	3.66E-07
Phenanthrene	1.70E-05	lb/MMscf	AP42	Table 1.4-3	4.08E-08	1.02E-08
Pyrene	5.00E-06	lb/MMscf	AP42	Table 1.4-3	1.20E-08	3.00E-09
Toluene	3.40E-03	lb/MMscf	AP42	Table 1.4-3	8.16E-06	2.04E-06

Thermal Oxidizer Emissions

From GE Report Table 3.8.1

Fuel	Natural Gas	**1200**	**lb/hr**
	Heat Content	**1000**	**Btu/scf**
	HHV	**21800**	**Btu/lb**
		2.18E-02	MMBtu/lb
		26.16	MMBtu/hr

	lb-mole/hr*	Mole Fraction	Molecular Weight	Mass Rate lb/hr	Mass Rate ton/yr	lb/MMbtu	lb/MMcf	ppm
CO_2	**766**	0.2467	44	10.9	47.5	0.41	414.98	246725
H_2O	**327**	0.1053	18	1.90	8.3	0.07	72.47	105325
N_2	**1949**	0.6278	28	17.58	77.0	0.67	671.92	627764
O_2	**62**	0.0200	32	0.64	2.8	0.02	24.43	19970
SO_2	**0.67**	0.00022	64	0.014	0.1	0.0005	0.53	216
Total	**3104.67**	1.00	186	30.982				1000000
				lb/hr		**lb/MMBtu**		
NO_2**	0.0031	0.000001	46	0.000046	0.00020	0.000		**1**

* Emissions from GE Report Table 4.1.1 Gaseous Emissions

** Assuming the 1 ppm NO_2 is part of the mole balance even though it makes the total mole fraction slightly greater than 1

Auxiliary Boiler

Process or Emission Point	Fuel Type or Material	Capacity	Units			
Aux Boiler 5000lb/hr 300psi assume 85% eff	**natural gas**	**2,350**	**ft3/hr (scfh)**			
		2.35	MMBtu/hr			

Assumptions
Natural Gas Heat Content 1000 Btu/cf — Useful Tables Babcock and Wilcox Fuel Analysis - Natural Gas p57
TPY Emissions are based on 500 hours per year
Emission Factors from USEPA's Compliance of Air Pollutant Emission Factors (AP42) Section 1.4

	Emission Factor	Units	Emission Factor Source		Emissions lb/hr	Emissions tpy
CO	84	lb/MMscf	AP42	Table 1.4-1	1.97E-01	0.04935
VOC	5.5	lb/MMscf	AP42	Table 1.4-2	1.29E-02	0.00323
NO_x	100	lb/MMscf	AP42	Table 1.4-1	2.35E-01	0.05875
$PM_{10\ Filterable}$	1.9	lb/MMscf	AP42	Table 1.4-2	4.47E-03	0.00112
$PM_{10\ Condensable}$	5.7	lb/MMscf	AP42	Table 1.4-2	1.34E-02	0.00335
SO_2	0.6	lb/MMscf	AP42	Table 1.4-2	1.41E-03	0.00035
Metallic HAPS						
Arsenic	2.00E-04	lb/MMscf	AP42	Table 1.4-4	4.70E-07	1.18E-07
Beryllium	1.20E-05	lb/MMscf	AP42	Table 1.4-4	2.82E-08	7.05E-09
Cadmium	1.10E-03	lb/MMscf	AP42	Table 1.4-4	2.59E-06	6.46E-07
Chromium	1.40E-03	lb/MMscf	AP42	Table 1.4-4	3.29E-06	8.23E-07
Cobalt	8.40E-05	lb/MMscf	AP42	Table 1.4-4	1.97E-07	4.94E-08
Manganesse	3.80E-04	lb/MMscf	AP42	Table 1.4-4	8.93E-07	2.23E-07
Mercury	2.60E-04	lb/MMscf	AP42	Table 1.4-4	6.11E-07	1.53E-07
Nickle	2.10E-03	lb/MMscf	AP42	Table 1.4-4	4.94E-06	1.23E-06
Selenium	2.40E-05	lb/MMscf	AP42	Table 1.4-4	5.64E-08	1.41E-08
Lead	0.0005	lb/MMscf	AP42	Table 1.4-2	1.18E-06	2.94E-07
Organic HAPS						
2-Methylnaphthalene	2.40E-05	lb/MMscf	AP42	Table 1.4-3	5.64E-08	1.41E-08
3-Methylchloranthrene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf	AP42	Table 1.4-3	3.76E-08	9.40E-09
Acenaphthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Acenaphthylene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Anthracene	2.40E-06	lb/MMscf	AP42	Table 1.4-3	5.64E-09	1.41E-09
Benz(a)anthracene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Benzene	2.10E-03	lb/MMscf	AP42	Table 1.4-3	4.94E-06	1.23E-06
Benzo(a)pyrene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	2.82E-09	7.05E-10
Benzo(b)fluoranthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	2.82E-09	7.05E-10
Benzo(k)fluoranthene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Chrysene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf	AP42	Table 1.4-3	2.82E-09	7.05E-10
Dichlorobenzene	1.20E-03	lb/MMscf	AP42	Table 1.4-3	2.82E-06	7.05E-07
Fluoranthene	3.00E-06	lb/MMscf	AP42	Table 1.4-3	7.05E-09	1.76E-09
Fluorene	2.80E-06	lb/MMscf	AP42	Table 1.4-3	6.58E-09	1.65E-09
Formaldehyde	7.50E-02	lb/MMscf	AP42	Table 1.4-3	1.76E-04	4.41E-05
Hexane	1.80E+00	lb/MMscf	AP42	Table 1.4-3	4.23E-03	1.06E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf	AP42	Table 1.4-3	4.23E-09	1.06E-09
Naphthalene	6.10E-04	lb/MMscf	AP42	Table 1.4-3	1.43E-06	3.58E-07
Phenanthrene	1.70E-05	lb/MMscf	AP42	Table 1.4-3	4.00E-08	9.99E-09
Pyrene	5.00E-06	lb/MMscf	AP42	Table 1.4-3	1.18E-08	2.94E-09
Toluene	3.40E-03	lb/MMscf	AP42	Table 1.4-3	7.99E-06	2.00E-06

SUMMARY OF ANNUAL HAP EMISSION FROM CASH CREEK GENERATING STATION

	Combustion Turbines Syngas tpy	Combustion Turbines Natural Gas tpy	Flare Pilot tpy	Fire Pump 500 hrs tpy	Aux Boiler 500 hrs tpy	Total
Metallic HAPS						
Arsenic	3.02E-03	0.00E+00	2.23E-07	1.20E-07	1.18E-07	3.02E-03
Beryllium	3.02E-03	0.00E+00	1.34E-08	7.20E-09	7.05E-09	3.02E-03
Cadmium	6.79E-03	0.00E+00	1.23E-06	6.60E-07	6.46E-07	6.79E-03
Chromium	5.28E-02	0.00E+00	1.56E-06	8.40E-07	8.23E-07	5.28E-02
Cobalt	7.01E-02	0.00E+00	9.38E-08	5.04E-08	4.94E-08	7.01E-02
Manganesse	1.51E-01	0.00E+00	4.24E-07	2.28E-07	2.23E-07	1.51E-01
Mercury	5.94E-02	0.00E+00	2.90E-07	1.56E-07	1.53E-07	5.94E-02
Nickle	5.94E-02	0.00E+00	2.35E-06	1.26E-06	1.23E-06	5.94E-02
Selenium	5.94E-02	0.00E+00	2.68E-08	1.44E-08	1.41E-08	5.94E-02
Lead	1.55E-02	0.00E+00	0.00E+00	3.00E-07	2.94E-07	1.55E-02
Organic HAPS						
1,3-Butadiene	-	6.18E-04	-	-	-	6.18E-04
2-Methylnaphthalene	-	0.00E+00	2.68E-08	1.44E-08	1.41E-08	5.53E-08
3-Methylchloranthrene	-	0.00E+00	2.01E-09	1.08E-09	1.06E-09	4.15E-09
7,12-Dimethylbenz(a)anthracene	-	0.00E+00	1.79E-08	9.60E-09	9.40E-09	3.69E-08
Acenaphthene	-	0.00E+00	2.01E-09	1.08E-09	1.06E-09	4.15E-09
Acenaphthylene	3.77E-03	0.00E+00	2.01E-09	1.08E-09	1.06E-09	3.77E-03
Acetaldehyde	-	5.75E-02	-	-	-	5.75E-02
Acrolein	-	9.19E-03	-	-	-	9.19E-03
Anthracene	-	0.00E+00	2.68E-09	1.44E-09	1.41E-09	5.53E-09
Benz(a)anthracene	3.47E-05	0.00E+00	2.01E-09	1.08E-09	1.06E-09	3.47E-05
Benzene	3.02E-01	1.72E-02	2.35E-06	1.26E-06	1.23E-06	3.19E-01
Benzo(a)pyrene	8.44E-05	0.00E+00	1.34E-09	7.20E-10	7.05E-10	8.45E-05
Benzo(b)fluoranthene	-	0.00E+00	2.01E-09	1.08E-09	1.06E-09	4.15E-09
Benzo(g,h,i)perylene	1.45E-04	0.00E+00	1.34E-09	7.20E-10	7.05E-10	1.45E-04
Benzo(k)fluoranthene	-	0.00E+00	2.01E-09	1.08E-09	1.06E-09	4.15E-09
Chrysene	-	0.00E+00	2.01E-09	1.08E-09	1.06E-09	4.15E-09
Dibenzo(a,h)anthracene	-	0.00E+00	1.34E-09	7.20E-10	7.05E-10	2.77E-09
Dichlorobenzene	-	0.00E+00	1.34E-06	7.20E-07	7.05E-07	2.77E-06
Ethyl Benzene	-	4.60E-02	-	-	-	4.60E-02
Fluoranthene	-	0.00E+00	3.35E-09	1.80E-09	1.76E-09	6.91E-09
Fluorene	-	0.00E+00	3.13E-09	1.68E-09	1.65E-09	6.45E-09
Formaldehyde	2.56E-01	1.02E+00	8.38E-05	4.50E-05	4.41E-05	1.28E+00
Hexane	-	0.00E+00	2.01E-03	1.08E-03	1.06E-03	4.15E-03
Indeno(1,2,3-cd)pyrene	-	0.00E+00	2.01E-09	1.08E-09	1.06E-09	4.15E-09
Naphthalene	6.03E-03	1.87E-03	6.81E-07	3.66E-07	3.58E-07	7.90E-03
PAH	-	3.16E-03	-	-	-	3.16E-03
Phenanthrene	-	0.00E+00	1.90E-08	1.02E-08	9.99E-09	3.92E-08
Propylene Oxide	-	4.17E-02	-	-	-	4.17E-02
Pyrene	-	0.00E+00	5.58E-09	3.00E-09	2.94E-09	1.15E-08
Toluene	4.98E-02	1.87E-01	3.80E-06	2.04E-06	2.00E-06	2.37E-01
Xylene	-	9.19E-02	-	-	-	9.19E-02
Acid Gases						
HF (assume all Fluorides are HF)	4.52E-01					4.52E-01
HCl (assume all Chlorides are HCl)	9.05E+00					9.05E+00
Total HAPs	**10.60**	**1.48**	**0.0021**	**0.0011**	**0.0011**	**12.08**
Typical Firing Syngas 7,860 hr/yr and NG 900 hr/yr	***9.51***					***10.99***

CASH CREEK GENERATING STATION MATERIAL HANDLING EMISSION ESTIMATES

Emission Point	Point or Fugitive	Process or Emission Point	Capacity	Units	Emission Factor	Units	Source	Capture Efficiency %	Control Efficeincy %	Total Efficiency %	Uncontrolled Emissions lb/hr	Uncontrolled Emissions tons/yr	Controlled Emissions lb/hr	Controlled Emissions tons/yr	g/s	
		Barge Coal Supply														
38	F	**Barge Unload by Clam Bucket (38a) to Barge Unload Hopper (38b)**	700	tons/hr	0.0003	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	0%	0%	0%	0.21	0.9198	0.21	0.9198	0.026459	
K3	P	**Barge Unload Hopper (38b) to Barge Coal Belt 42 inches (18b)**	700	tons/hr	0.0003	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	99.5%	100%	99.5%	0.21	0.9198	0.00105	0.004599	0.000132	
		Barge Coal Belt 42 inches (18b) to Receiving Transfer #1 (17)														
														0.924399		
37	P	**Transfer from Mine Belt to Coal Belt 42 inches (18a)**	800	tons/hr	0.0003	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	99.5%	100%	99.5%	0.24	1.0512	0.0012	0.005256	0.000151	
		Coal Belt 42 inches (18a) from Mine to Receiving Transfer #1 (17)														
		Mine Supply														
		Receiving Transfer #1 to Plant Receiving Belt 42 inches (18c)														
33	P	**Transfer House #1 Dust Collector and Emission Point**	800	tons/hr	0.0003	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	99.5%	100%	99.5%	0.24	1.0512	0.0012	0.005256	0.000151	
		Receiving Belt 42 (18c)inches to Transfer #2 (19)														
		Transfer #2 (19) to Plant Feed Belt (18d) or Storage Pile Belt (18e)														
34	P	**Transfer House #2 (19) Dust Collector and Emission Point**	800	tons/hr	0.0003	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	99.5%	100%	99.5%	0.24	1.0512	0.0012	0.005256	0.000151	
		Direct Plant Feed from Mine - Emissions are Not Expected from Wet Grinding Process														
22	p	**Plant Feed Belt (18d) to Coal Preparation (Grinding) Building 22**	800	tons/hr	0.0004	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	99.5%	100%	99.5%	0.32	1.4016	0.0016	0.007008	0.000202	
		Longterm Coal Storage Pile - Estimated to Occur Only 3 Times per Year														
		Storage Pile Belt 42 inches (18e) from Receiving Transfer #2 (19) to Storage Pile (20)														
20a	F	**Coal Storage Pile Load in Stacker Tube with Suppression**	105	tons/hr	0.0343	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	0.0%	90.0%	90.0%	3.60	1.80075	0.36015	0.18	0.045378	
		Load in/out of coal														
20b	F	**Coal Storage Pile Wind Errosion** — **See Storage Pile Wind Errosion Spreadsheet**	4.2	acres	241.13	lb-PM/PM_{10}/acre of storage	AP42	0.0%	90.0%	90.0%	0.1156	0.506383	0.01156	0.050638	0.001457	
														0.23		
		Plant Feed from Longterm Storage Pile														
		Coal Underground Reclaim (3 hoppers) to Coal Reclaim Belt 42 inches (21) (maximum operation 1,000 hours per year)														
		Coal Reclaim Belt (21) to Coal Preperation (Grinding) Building 22 (maximum operation 1,000 hours per year)														
35	P	**Coal Reclaim Dust Collector and Emission Point**	800	tons/hr	0.0003	lb-PM/PM_{10}/ton-coal	KYDAQ-MRI	99.5%	100%	99.5%	0.24	0.12	0.0012	0.0006	0.000151	0.016368
26		**Slag/Fines Landfill**		tons/hr	0.0000	lb-PM/PM_{10}/ton-coal				100%						
27		**Brine Landfill - Water Based Landfill**		tons/hr	0.0000	lb-PM/PM_{10}/ton-coal				100%						
12		**Slag/Waste Water**		tons/hr	0.0000	lb-PM/PM_{10}/ton-coal				100%						
		The slag material contains 50% or more water and is assumed to have zero emissions														
													Total	0.947175		

Cooling Tower Emissions

Evaporation/Drift Flow Rate	3,821.9	GPM
TDS	0.021	ppm
Drift Eliminator	0.0005%	
Water Density	8.33	lb/gal
Drift (PM) emitted from cooling tower	***0.0051***	***grams - drift/second***
	0.040	***lb - drift/hour***
	1.7493E-07	***lb - drift/gallon-water***
	0.176	***tons - drift/year***

LONG TERM STORAGE PILE EMISSIONS

				Uncontrolled		Controlled	
		ACRES	Control	lb/yr	ton/yr	lb/yr	ton/yr
Coal Storage Pile	**Wind Erosion**	4.2	90%	1012.77	0.506	101.28	0.0506
Slag Storage Piles		No emisisons are expected due to the nature of the material and the storage methods					

	90%	control by wet suppresion and compaction
s =	5	Material silt content (%)
d =	250	Average number of dry days per year (days)
f =	10	Percentage of time wind speed exceeds 12 mph (%)
D =	120	Duration of material storage (days) based on three pile tunrovers per year
E_W =	**241.13**	Pounds of PM_{10} per acre of storage

Emission Factor Equation for Stockpile Wind Erosion

$$E_W = \left[0.85 \times \left(\frac{s}{1.5}\right) \times D \times \left(\frac{d}{235}\right) \times \left(\frac{f}{15}\right)\right]$$

$$E_W = \left[0.85 \times \left(\frac{5}{1.5}\right) \times 120 \times \left(\frac{250}{235}\right) \times \left(\frac{10}{15}\right)\right]$$

$\boldsymbol{E_W}$ **= 241.13 lb/acre**

FRONT LOADER STORAGE PILE MAINTENANCE

	Slag* Rate ton/hr	Emission Factor lb/ton	Percent Control	Uncontrolled Emissions lb/hr	Uncontrolled Emissions ton/yr	Controlled Emissions lb/hr	Controlled Emissions ton/yr
PM/PM_{10}	26.54	0.033	90%	0.87	3.79	0.087	0.379

$$\boxed{E = 0.10(K)\left(\frac{s}{1.5}\right)\left(\frac{d}{235}\right)}$$

MRI

E		Emission factor for loader activity - lb/ton of material
K	1	Activity correction
s	1	Silt percent - %
d	115	Days per year with precipitation less than 0.01 inches

* SLAG rate is for dewatered coarse and fine slag

CASH CREEK GENERATING STATION
FUGITIVE DUST FROM TRUCK TRAFFIC CALCULATIONS

TYPES OF TRUCKS	AVERAGE* TRUCK WEIGHT TONS	UNCONTROLLED EMISSION FACTOR PAVED g/VMT	UNCONTROLLED EMISSION FACTOR PAVED lb/VMT	UNCONTROLLED EMISSION FACTOR UNPAVED lb/VMT	UNPAVED PRECIPITATION CORRECTION	UNCONTROLLED EMISSION FACTOR UNPAVED lb/VMT	TRUCKS/DAY AVG	TRUCKS/DAY MAX	TRUCKS /HR AVG	TRUCKS /HR MAX	MILES ROUND TRIP PAVED	MILES ROUND TRIP UNPAVED
SLAG TRANSPORT TO PILES	24	51.22	0.113	1.135	0.75	0.49	18.7	21.9	0.78	0.91	0.87	0.87

TYPES OF TRUCKS	ON-SITE VMT/DAY PAVED AVG	ON-SITE VMT/DAY PAVED MAX	ON-SITE VMT/DAY UNPAVED AVG	ON-SITE VMT/DAY UNPAVED MAX	UNCONTROLLED EMISSIONS LBS/DAY PAVED ROADS AVG	UNCONTROLLED EMISSIONS LBS/DAY PAVED ROADS MAX	UNCONTROLLED EMISSIONS LBS/DAY UNPAVED ROADS AVG	UNCONTROLLED EMISSIONS LBS/DAY UNPAVED ROADS MAX	PERCENT CONTROL	CONTROLLED EMISSIONS LBS/DAY PAVED ROADS AVG	CONTROLLED EMISSIONS LBS/DAY PAVED ROADS MAX	CONTROLLED EMISSIONS LBS/HR* PAVED ROADS AVG	CONTROLLED EMISSIONS LBS/HR* PAVED ROADS MAX	CONTROLLED EMISSIONS LBS/DAY UNPAVED ROADS AVG	CONTROLLED EMISSIONS LBS/DAY UNPAVED ROADS MAX	CONTROLLED EMISSIONS LBS/HR* UNPAVED ROADS AVG	CONTROLLED EMISSIONS LBS/HR* UNPAVED ROADS MAX
SLAG TRANSPORT TO PILES	16.269	19.053	16.269	19.053	1.837	2.151	8.02	9.39	90%	0.184	0.215	0.0077	0.0090	0.802	0.939	0.0334	0.0391

* Based on tare and load capacity from MACK truck model CV712

PAVED ROADS EQUATION

$$E_{est} = \left[k\left(\frac{sL}{2}\right)^{0.65}\left(\frac{W}{3}\right)^{1.5} - C\right]\left(1 - \frac{P}{4N}\right)$$

E = particulate emission factor (units of k)
sL = road surface silt loading (grams per square meter)(g/m2)
k = particle size multiplier for particle size range.
W = average weight (tons) of the vehicle traveling the road
C = emission factor for 1980s vehicle fleet exhaust, brake wear, and tire wear
P = number of "wet" days with at least 0.254 mm(0.01 in) of precipitation during the averaging period
N = number of days in the averaging period (e.g. 30 for monthly)

INPUTS

sL	0.4	g/m2
k	7.3	
C	0.2119	
P	125	days
N	365	days

UNPAVED ROADS EQUATIONS

$$E = k * \left(s/12\right)^{a} * \left(W/3\right)^{b}$$

$$E_{ext} = E\left(\frac{365 - P}{365}\right)$$

E = size specific emission factor (lbs/VMT)
k = particle size multiplier for particle size range
s = surface material silt content (%)
a = constant based on size of particulate
b = constant based on size of particulate
W = Coal Trucks = 50 tons, Ash Trucks = 50 tons, Limestone Trucks = 25 tons

Eext = natural mitigation emission factor (lb/VMT)
P = number of days per year with 0.01 in or more of precipitation

INPUTS

k	1.5	lb/VMT
s	5	%
a	0.9	
b	0.45	
P	125	days

P 125 wet days/yr

APPENDIX B – ACID RAIN PERMIT APPLICATION

Acid Rain Permit Application

United States
Environmental Protection Agency
Acid Rain Program

OMB No. 2060-0258

EPA

Acid Rain Permit Application

For more information, see instructions and refer to 40 CFR 72.30 and 72.31

This submission is: X New ☐ Revised

STEP 1

Identify the source by plant name, State, and ORIS code.

Cash Creek Generation - Kentucky - 56107

STEP 2

Enter the unit ID# for every affected unit at the affected source in column "a." For new units, enter the requested information in columns "c" and "d."

a	b	c	d
Unit ID#	Unit Will Hold Allowances in Accordance with 40 CFR 72.9(c)(1)	New Units Commence Operation Date	New Units Monitor Certification Deadline
31 - CT/HRSG #1	Yes	Q2 2010	
32- CT/HRSG #2	Yes	Q2 2010	

EPA Form 7610-16 (rev. 12-03)

STEP 3

Read the standard requirements

Permit Requirements

(1) The designated representative of each affected source and each affected unit at the source shall:
(i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and
(ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;
(2) The owners and operators of each affected source and each affected unit at the source shall:
(i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and
(ii) Have an Acid Rain Permit.

Monitoring Requirements

(1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75.
(2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
(3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements

STEP 4

Read the certification statement, sign, and date

(1) The owners and operators of each source and each affected unit at the source shall:
(i) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)), or in the compliance subaccount of another affected unit at the same source to the extent provided in 40 CFR 73.35(b)(3), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and
(ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
(2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
(3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
(i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or
(ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).
(4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
(5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
(6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
(7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements

(1) The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
(2) The owners and operators of an affected unit that has excess emissions in any calendar year shall:
 (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
 (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements

(1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
 (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;
 (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
 (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
 (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
(2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability

(1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
(2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
(3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
(4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.

Liability, Cont'd.

(5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
(6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit. Except as provided under 40 CFR 72.44 (Phase II repowering extension plans) and 40 CFR 76.11 (NO_x averaging plans), and except with regard to the requirements applicable to units with a common stack under 40 CFR part 75 (including 40 CFR 75.16, 75.17, and 75.18), the owners and operators and the designated representative of one affected unit shall not be liable for any violation by any other affected unit of which they are not owners or operators or the designated representative and that is located at a source of which they are not owners or operators or the designated representative.
(7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities

No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:
(1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;
(2) Limiting the number of allowances a unit can hold; *provided,* that the number of allowances held by the unit shall not affect the source's obligation to comply with any other provisions of the Act;
(3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;
(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,
(5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

Certification

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name	Michael L McInnis	
Signature	[signature]	Date 7-15-05

PREVENTION OF SIGNIFICANT DETERIORATION, TITLE V OPERATING PERMIT & PHASE II ACID RAIN JOINT APPLICATION

for

Cash Creek Generating Station

HENDERSON COUNTY, KY

Volume 2 of 2

July 2005

APPENDIX C – RBLC TABLES

ELECTRIC POWER PLANT CONSTRUCTION PROJECTS SINCE 1998

Status as of October 1, 2004

LISTING OF NEW COAL AND SOLID FUEL-FIRED BOILER POWER PLANTS

Project	ID No./Application No. Action Dates	Type of Boiler	Emission Controls	Rated Output (MWe)	Status
Enviropower Enviropower Benton, Franklin County	055802AAG 00080042 R 8/16/00 I 7/3/01	Fluidized bed (Coal refuse & coal)	SNCR, SO2 sorbent injection & baghouse	2 @ 250	Under Construction
Corn Belt Energy Prairie Energy Power Plant Elkhart, Logan County	107806AAC 01070028 R 7/10/01 I 12/17/02	U-fired (Mine mouth coal)	SCR, ESP & FGD	91 (84 net[a])	Permitted
Prairie State Generating LLC Prairie State Generating "Marissa," Washington Cty	189808AAB 01100065 R 10/19/01	Pulverized Coal (Mine mouth coal)	SCR, ESP & FGD	2 @ 810 [b] (750 net)	Final Review
Indeck Indeck-Elwood LLC Elwood, Will County	197035AAJ 02030060 R 3/21/02 I 10/10/03	Fluidized bed (Coal & pet. coke)	SNCR Baghouse	2 @ 330 (300 net)	Permit Issued[c]
Dynegy Midwest Generation Baldwin Expansion Baldwin, Randolph County	157851AAA 02040021 R 4/5/02	Pulverized Coal	SCR, ESP & FGD	2 @ 825 (750 net)	Under Review
Illinois Energy Group Franklin Energy Coal Project Benton, Franklin County	055806AAB 02060022 R 6/7/02	Pulverized Coal	SCR, ESP & FGD	2 @ 750 (680 net)	Under Review

Notes: a. Estimated net electrical output
b. Estimated gross electrical output
c. Permit not effective, as a petition for review has been filed with USEPA's Environmental Appeals Board.

LISTING OF COAL AND SOLID FUEL-FIRED BOILER PROJECTS AT EXISTING UTILITY POWER PLANTS

Project	ID No./Application No. Action Dates	Type of Boiler	Emission Controls	Rated Output (MWe)	Status
Southern Illinois Power Coop Marion, Williamson County (SIPCO Power Plant)	199856AAC 00070030 R 7/12/00 I 5/16/01	Fluidized Bed (coal refuse & coal)	Baghouse	120	Operation 2003 (Permitted with netting)

Notes:
Rated Power – Rated electrical output in megawatts (MWe) under the nominal operating conditions given in the application. Rated electrical output may be less during hot weather.

Abbreviations -
R = Received I = Issued

LISTING OF
ACTIVE* SIMPLE CYCLE TURBINE PROJECTS

(*Projects are listed for which an air pollution construction permit is issued or an application is pending with the Illinois EPA.)

Project	ID/Application Nos.	Rated Power (MWe)	Notes
Permitted - Operating			
Peoples Gas - Elwood Elwood Energy Center *(Existing Industrial Plant)*	197808AAG 98060001	680	Major Operation 1999
	00010076, 00010077	860	Major Modification Operation 2001
Dynegy (Illinois Power) - Tilton Tilton Plant	183090AAE 98110018	176	Minor Operation 1999
Dynegy - East Dundee Rocky Road Power	089425AAC 98120016, 99050098	398	Minor Operation 1999
Soyland Power - Alsey Soyland - Alsey Plant	171851AAA 98120050, 99120026	130	Minor Operating 1999
Allegheny Energy Supply Lincoln Generating Station Formerly Enron – Des Plaines	197811AAH 99020021	664	Major Operation 2000
Electric Energy - Joppa Midwest Electric Power *(Joppa Power Plant)*	127899AAA 99100060	318	Minor Operation 2000
Union Electric – Gibson City Gibson City Plant	053803AAL 99020071	270	Minor Operation 2000
Ameren - Pinckneyville Pinckneyville Power Plant	145842AAA 99090035	194	Minor Operation 2000
	00090076	192	Minor Operation 2001
Reliant Energy - Sigel Shelby Energy Center	173801AAA 99090085	328	Minor Operation 2000
Indeck - Rockford Indeck Rockford	201030BCG 99110088	300	Minor Operation 2000
Southwestern Electric Coop – St. Elmo formerly Spectrum Energy	051808AAK 99060052	45	Minor Operation 2000
Duke Energy – South Dixon Lee Generating Station	103817AAH 99090029	664	Minor Operation 2001
Constellation – University Park University Park Energy LLC	197899AAB 99120020	300	Minor Operation 2001
Reliant Energy - Aurora Reliant DuPage County LP	043407AAF 99110018	850	Minor Operation 2001
Union Electric – Kinmundy Kinmundy Plant	121803AAA 99020027	270	Minor Operation 2001
Power Energy Partners - Crete Crete Energy Park	197030AAO 99120056	356	Minor Operation 2002
Aquila Energy – Flora Raccoon Creek Energy Center	025803AAD 00050050	378	Minor Operation 2002
Calpine - Zion Zion Energy Center	097200ABB 99110042	320	Major Operation 2002

Ameren Union Electric – Venice Plant *(Venice Power Plant*	119105AAA 01080020	60	Minor Operation 2002
PPL Global - University Park University Park Power Plant	197899AAC 00080078	530	Minor Operation 2002
Indeck - Rockford *(Indeck Rockford)*	201030BCO 00100077	166	Minor Operation 2002
Peoples Energy - Chicago Southeast Chicago Energy Project LLC	031600GKE 01040082	350	Minor Operation 2002
Calumet Energy LLC - Chicago Calumet Energy Team	031600GHA 99110107	305	Minor Operation 2002
Ameren Energy - Elgin Elgin Energy Center	031438ABC 00100065	540	Minor Operation Late 2002
Aquila - Deland/Lodge Piatt County Power	147803AAC 00090082	567	Minor Operation 2003
Calpine – Zion Energy Center *(Zion Energy Center)*	097200ABB 99110042	160	Major Operation 2003
Southern Illinois Power Coop - Marion *(SIPCO Power Plant)*	199856AAC 00070028	166	Minor Operation 2003
	Subtotal	10,537	
Permitted - Being Built			
None			
Permitted			
Enron Kendall New Century Development	093801AAN 99020032	664	Major
Ameren Union Electric Venice, Madison County *(Venice Power Plant)*	119105AAA 02100052	335 (est. net)	Minor (netting)
	Subtotal	999	
In Review			
None			
	Total	11,536	

Notes:
Rated Power – Rated electrical output in megawatts (MWe) under the nominal operating conditions given in the application. Rated electrical output may be less during hot weather.

LISTING OF
ACTIVE COMBINED CYCLE TURBINE PROJECTS

Project	ID/Application Nos.	Rated Power (MWe)	Notes
Operating			
Mid America – Cordova Energy LLC Cordova Energy Center	161807AAN 99020097	500	Major Operation 2001
Ameren – Grand Tower *(Grand Tower Station)*	077806AAA 99080101	600 (428 net)	Minor Operation 2001
CILCO - Mossville Medina Cogeneration Plant *(Caterpillar Engine Plant)*	143810AAG 99100102	42.6	Minor Operation 2001
Constellation Power – Beecher City Holland Energy LLC	173807AAG 99100022	336	Major Operation 2002
LS Power - Minooka Kendall Energy	093808AAD 98110017	1000	Major Operation 2002
	Subtotal	2,307	
Permitted – Being Built			
LS Power - Nelson Nelson Project	103814AAC 98080039	1000	Major Construction Interrupted
	Subtotal	1000	
Permitted			
3426 E. 89th St. LLC 3426 E. 89th St.	031600GNK 02120052	550	Major
	Subtotal	550	
In Review			
None			
	Total	3,857	

Notes: Rated Power – Rated electrical output in megawatts (MWe) under the nominal operating conditions given in the application. Rated electrical output may be less during hot weather.

SULFUR DIOXIDE EMISSION LEVELS FOR FOR COAL* FIRED POWER PLANTS
(Alphabetical by plant)

NO.	OWNER	Plant	SO2 Emission Rates (tons/year)						
			2002	2001	2000	1999	1998	1997	1996
1	Dynegy	Baldwin	26,267	23,130	36,599	245,243	284,616	276,035	273,838
2	Ameren	Coffeen	42,331	37,687	39,090	47,611	49,413	47,756	43,755
3	Midwest Generation	Crawford	7,596	5,668	9,332	6,707	7,879	4,609	7,974
4	City of Springfield	CWLP	10,629	15,036	25,756	40,720	44,724	47,897	41,523
5	Ameren	Duck Creek	11,026	11,089	11,115	11,878	12,649	16,322	13,669
6	Ameren	Edwards	19,366	50,126	56,809	71,995	70,913	76,406	67,793
7	Midwest Generation	Fisk	3,843	3,535	4,848	4,306	5,350	5,260	3,143
8	Ameren	Grand Tower*	0	0	13,774	12,396	15,023	25,925	19,553
9	Dynegy	Havana	12,815	7,814	10,586	9,251	9,477	11,593	7,656
10	Dynegy	Hennepin	4,792	4,173	5,732	27,532	46,809	47,346	47,636
11	Ameren	Hutsonville	14,955	15,102	13,828	10,652	10,904	19,622	19,301
12	Midwest Generation	Joliet	25,223	20,194	23,493	28,426	25,813	27,859	20,800
13	Electric Energy	Joppa	23,128	22,180	23,438	23,744	23,852	24,201	25,286
14	Dominion	Kincaid	17,665	17,805	18,449	19,667	46,417	41,096	20,051
15	SIPCO	Marion	8,985	15,376	13,632	17,451	18,879	14,830	6,739
16	Ameren	Meredosia	25,052	22,263	22,185	17,860	23,188	27,863	22,614
17	Ameren	Newton	17,870	15,458	15,958	18,812	21,806	30,317	26,553
18	Midwest Generation	Powerton	16,814	20,522	22,771	36,069	19,577	28,111	23,803
19	Dynegy	Vermilion	16,501	15,114	13,001	10,833	12,220	6,208	579
20	Midwest Generation	Waukegan	10,782	11,026	17,650	18,103	23,011	22,718	11,534
21	Midwest Generation	Will Cty	13,684	10,933	16,230	15,402	16,887	15,319	13,747
22	Dynegy	Wood River	7,262	17,783	13,569	14,311	15,268	3,778	13,835
		TOTALS>>	336,586	362,016	427,845	709,167	804,675	821,068	731,379

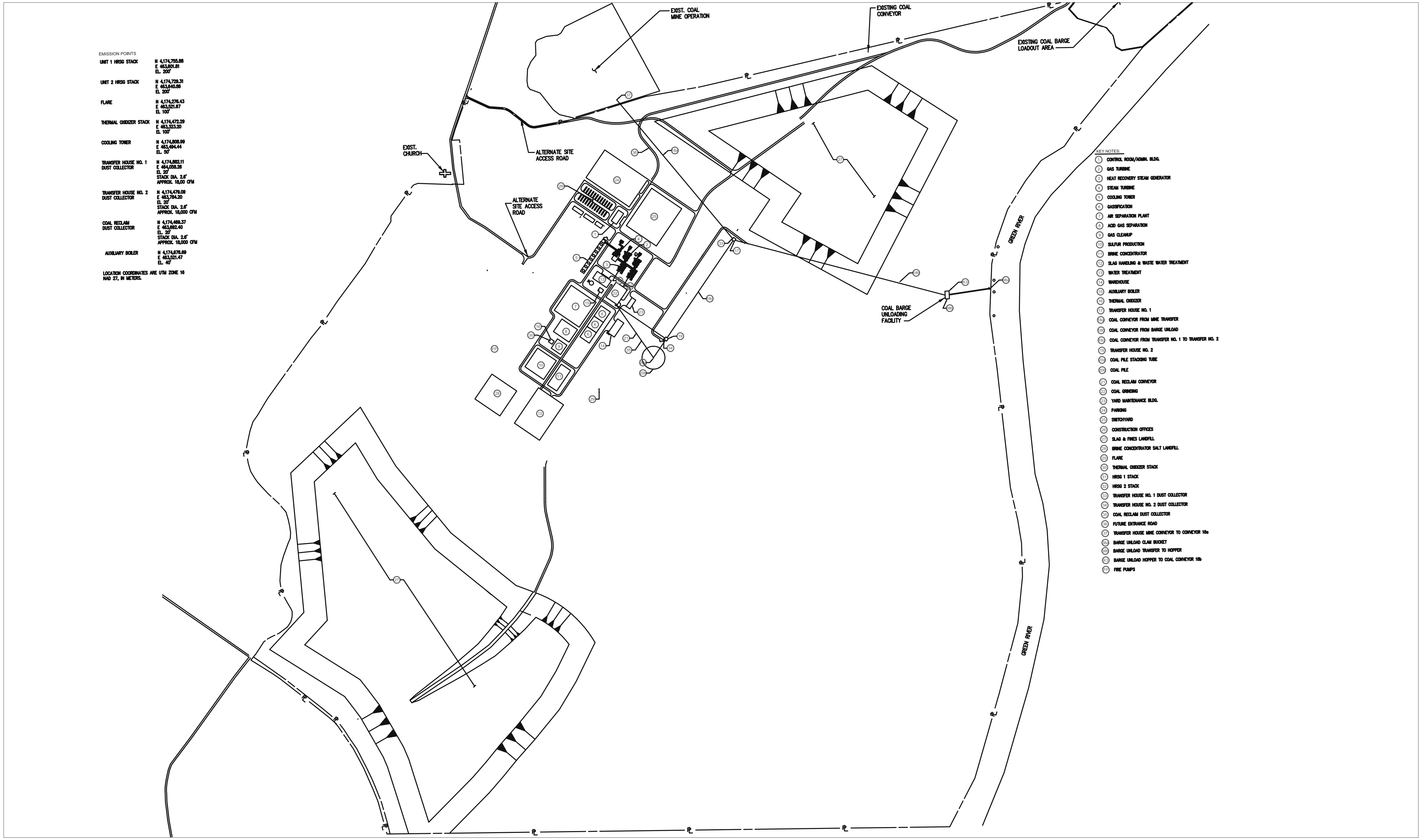
*) Grand Tower converted to natural gas in 2001

NITROGEN OXIDES EMISSION LEVELS FOR FOR COAL* FIRED POWER PLANTS
(Alphabetical by plant)

NO.	OWNER	Plant	NOx Emission Rates (tons/year)						
			2002	2001	2000	1999	1998	1997	1996
1	Dynegy	Baldwin	22,375	28,389	26,337	55,027	62,711	65,315	63,211
2	Ameren	Coffeen	14,339	15,274	25,806	27,829	24,813	29,205	30,535
3	Midwest Generation	Crawford	2,850	2,450	5,517	3,138	4,778	3,027	4,819
4	City of Springfield	CWLP	9,245	9,282	11,239	8,999	9,302	9,871	9,386
5	Ameren	Duck Creek	5,328	6,616	6,373	6,455	7,156	7,058	7,482
6	Ameren	Edwards	8,846	9,612	10,208	10,193	10,003	13,481	12,747
7	Midwest Generation	Fisk	2,462	2,440	3,208	2,344	3,095	3,172	1,941
8	Ameren	Grand Tower*	343	121	2,502	2,175	2,080	3,356	2,635
9	Dynegy	Havana	3,901	3,470	5,351	3,993	4,315	5,491	4,005
10	Dynegy	Hennepin	3,621	3,090	3,331	3,032	5,111	5,395	5,085
11	Ameren	Hutsonville	1,799	1,803	1,705	1,444	1,283	2,415	2,407
12	Midwest Generation	Joliet	6,372	6,923	13,361	22,173	18,566	21,427	15,987
13	Electric Energy	Joppa	5,796	6,898	8,770	8,447	9,510	11,935	11,387
14	Dominion	Kincaid	20,905	22,644	23,796	27,114	32,534	25,996	24,874
15	SIPCO	Marion	6,701	7,718	7,543	9,073	11,731	8,740	5,453
16	Ameren	Meredosia	3,779	3,413	3,850	3,657	3,249	4,766	4,548
17	Ameren	Newton	5,252	5,019	6,841	7,620	8,778	10,982	9,545
18	Midwest Generation	Powerton	27,219	35,619	33,775	38,687	33,633	44,317	38,873
19	Dynegy	Vermilion	2,215	1,935	2,094	1,962	1,979	865	160
20	Midwest Generation	Waukegan	4,945	6,314	6,567	7,651	9,827	11,625	7,918
21	Midwest Generation	Will City	10,619	10,806	11,317	10,984	12,658	16,538	14,479
22	Dynegy	Wood River	2,425	6,071	5,916	6,630	6,497	1,777	7,250
		TOTALS>>	171,336	195,908	225,407	268,607	283,407	306,750	284,729

*) Grand Tower converted to natural gas in 2001

APPENDIX D– PLANT LAYOUT



CASH CREEK GENERATING STATION – PLOT	
NOT FOR CONSTRUCTION	VERSION: 07–15–2005

APPENDIX I – MODELING CDs

APPENDIX J – CLASS I MODELING PROTOCOL ADDENDUM #1

APPENDIX K – PRECIPITATION, SURFACE & UPPER AIR STATIONS

APPENDIX L – EPA REGION IV AERMOD APPROVAL EMAIL

APPENDIX M– BPIP OUTPUT FILES

APPENDIX N – MSDS SHEETS

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August 29, 2005

EXCELSIOR ENERGY ANNOUNCES SITE SELECTIONS FOR MESABA ENERGY PROJECT UNIT I

FOR IMMEDIATE RELEASE

Minnetonka, MN, August 29, 2005---Excelsior Energy Inc., announced it has selected the preferred and alternative sites for its Mesaba Energy Project Unit I. The preferred site, located just north of the city of Taconite in Itasca County, is subject to approval by the Minnesota Public Utilities Commission (PUC).

"Site selection is an important milestone in the ongoing development of our project. We are grateful for the efforts of the Iron Range delegation and others from both parties in the State Legislature, Governor Pawlenty, the Iron Range Resources agency, and communities across the Range. This support, together with the most recent heroic efforts in Washington of Senator Coleman, with help from Congressman Oberstar and Senator Dayton, to secure loan guarantees for the project in the federal energy bill, will allow Minnesota to lead the way in using our abundant, domestic coal resources to meet the nation's growing energy needs, and doing it with dramatically improved environmental performance," said Tom Micheletti, Excelsior Co-CEO.

Excelsior Energy has secured a site option for the preferred "West Range" site from RGGS, a land and mineral management company. The site encompasses more than 1,000 acres and provides a buffer zone between the plant facilities and nearby communities. Water supply is expected to come from abandoned mining pits in the area. The plant development also has the potential to assist local communities to better manage rising water levels in area mining pits.

The company has also identified an "East Range" site, located just north of Hoyt Lakes in St. Louis County, as an alternative site. The West Range and East Range sites are both capable of accommodating multiple generating units, each unit nominally sized to produce 600 megawatts of electricity--enough to serve 600,000 residences. When placed in service, Unit I will be the cleanest utility-scale, coal-fueled power plant in the world.

Excelsior Energy Inc. is a Minnesota company developing the Mesaba Energy Project, an Integrated Gasification Combined Cycle ("IGCC") base load electric power generating facility which will be located on Minnesota's Iron Range. In contrast to traditional coal power plants, an IGCC unit produces synthetic gas ("syngas") from coal, and the syngas is cleaned and then used to generate electricity. This process enables dramatically reduced environmental emissions, and provides a technology path to future carbon dioxide capture and management.

Each Mesaba unit will cost more than $1.5 billion to build and provide up to 1,000 construction jobs during the four-year construction period. Ongoing operation of each unit will provide approximately 100 jobs for the highly-skilled workforce of the Iron Range region.

See Attachments for further information. Additional information concerning Excelsior Energy and the Mesaba Energy Project is available at excelsiorenergy.com.

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Mesaba Energy Project

Mesaba One and Mesaba Two

JOINT APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION FOR THE FOLLOWING PRE-CONSTRUCTION PERMITS:

LARGE ELECTRIC GENERATING PLANT SITE PERMIT, HIGH VOLTAGE TRANSMISSION LINE ROUTE PERMIT AND NATURAL GAS PIPELINE ROUTING PERMIT

Prepared by

EXCELSIOR ENERGY

June 16, 2006

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TABLES

FIGURES

APPENDICES – See attached MPUC Joint Application Appendices CD for Appendices 5, 6 and 9.

GLOSSARY OF TERMS AND ACRONYMS

37L, 39L, etc.	Existing High Voltage Transmission Line Identification Numbers
acfm	Actual Cubic Feet per Minute
ACSR	(Conductor)
AADT	Annual Average Daily Traffic
AERA	Air Emission Risk Analysis
AGR	Acid Gas Recovery
Al_2O_3	Aluminum Oxide
AMP	Arcturus Mine Pit
AP-42	USEPA Compendium of Air Pollutant Emission Factors
APE	Area of Potential Effect
AQRV	Air Quality Related Values
AREMA	American Railway Engineering and Maintenance Association
ASU	Air Separation Unit
ATPA	Andean Trade Preferences Act
BACT	Best Available Control Technology
BBER	University of Minnesota Duluth’s Bureau of Business and Economics Research
BCC	Bioaccumulative Chemical of Concern
BFD	Block Flow Diagram
BFW	Boiler Feed Water
BMP	Best Management Practices
BNSF	Burlington Northern Santa Fe (Railway Company)
BOD	Biological Oxygen Demand
BTA	Best Technology Available
Btu	British Thermal Unit
CAA	Clean Air Act
$CaCO_3$	Calcium Carbonate (Limestone)
CAIR	Clean Air Interstate Rule
CALMET	
CALPUFF	

CaO	Calcium Oxide (Lime)
CCPI	Clean Coal Power Initiative
CE	Cliffs-Erie, LLC
CEMS	Continuous Emission Monitoring System
C.F.R.	Code of Federal Regulations
CKT	Circuit
CE	Cliffs Erie
CMP	Canisteo Mine Pit
CN	Canadian National (Railway Company)
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COC	Cycles of Concentration
COD	Chemical Oxygen Demand
COS	Carbonyl Sulfide
CR/CRs	Country Road(s)
CSFB	Credit Suisse First Boston
CTG	Combustion Turbine Generator
DLN	Dry Low NO_x
DOE	Department of Energy
DOT	Department of Transportation
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EPA	Environmental Protection Agency
EPC	Engineering, Procurement and Construction
EPRI	Electric Power Research Institute
EU	Emission Unit
FAV	Final Acute Value
Fe_2O_3	Iron Oxide
FEED	Front End Engineering and Design
FERC	Federal Energy Regulatory Commission
FGD	Flue Gas Desulfurization
FHWA	Federal Highway Administration
FSQ	Full Slurry Quench
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCP	Good Combustion Practice
GLG	Great Lakes Gas Transmission Company
GLI	Great Lakes Initiative
GMMP	Gross Marble Mine Pit
GO	Generator Outlet

GPM	Gallons per Minute
gpm	Gallons per Minute
H_2	Hydrogen
H_2O	Water
H_2S	Hydrogen Sulfide
H_2SO_4	Sulfuric Acid
HAMP	Hill-Trumbull/Hill Annex Mine Pit
HAP	Hazardous Air Pollutant
HHV	Higher Heating Value
HP	High Pressure
HRSG	Heat Recovery Steam Generator
HVTL	High Voltage Transmission Line
IGCC	Integrated Gasification Combined Cycle
IP	Intermediate Pressure
IRR	Iron Range Resources
ISBL	Inside Battery Limits
K_2O	Dipotassium Oxide
kW	Kilo Watt
LAER	Lowest Achievable Emission Rate
lb/million Btu	Pound per Million British Thermal Unit
lb/MMBtu	Pound per Million British Thermal Unit
LGIA	Large Generator Interconnection Agreement
LGIR	Large Generator Interconnection Request
LGIP	Large Generator Interconnection Procedure
LLC	Limited Liability Company
LMP	Lind Mine Pit
LOS/LOSs	Line of Sight/Lines of Sight
LP	Low Pressure
LSTK	Lump Sum Turn Key
MAAQS	Minnesota Ambient Air Quality Standards
MACT	Maximum Available Control Technology
MDEA	Methyl-Diethanolamine
MDNR	Minnesota Department of Natural Resources
MEP	Mesaba Energy Project
MgO	Magnesium Oxide
MISO	Midwest Independent (Transmission) System Operator
MMBtu	Million British Thermal Units
MMBtu/hr	Million British Thermal Units Per Hour
MOPS	Minnesota Office of Pipeline Safety
MP	Minnesota Power (Company)

MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utility Commission
MSDS	Material Safety Data Sheets
MVA	Million Volts Amps
MVR	Mechanical Vapor Recompression
MW	Megawatt
N_2	Nitrogen
Na_2O	Disodium Oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETL	National Energy Technology Laboratory (DOE)
NH_3	Ammonia
NiO	Nickel Monoxide
NNG	Northern Natural Gas Co.
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NSP	Xcel Energy (Formerly NSP, Northern States Power)
NSPS	New Source Performance Standards
NTP	Notice to Proceed
O&M	Operation and Maintenance
O_2	Oxygen
OSBL	Outside Battery Limits
OSHA	Occupational Safety and Health Administration
P_2O_5	Diphosphorus Pentoxide
PC	Pulverized Coal
PEP	Project Execution Plan
PM	Particulate Matter
PM_{10}	Particulate Matter having an aerodynamic diameter less than 10 Microns
POI	Point of Interconnection
POTW	Publicly Owned Treatment Works
PPA	Power Purchase Agreement
ppmvd	Parts per Million (dry volume)
ppmw	Part per Million (wet basis)
PRB	Powder River Basin
PSD	Prevention of Significant Deterioration
psig	Pounds per Square Inch (gauge)
PSQ	Partial Slurry Quench
PTE	Potential to Emit
RACT	Reasonable Available Control Technology

RBLC	RACT/BACT/LAER Clearinghouse
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Program
ROW/ROWs	ROW/Rights of Way
S	Sulfur
SO_3	Sulfur Trioxide
scf	Standard Cubic Feet
SPCC	Spill Prevention Control and Countermeasure
SCPC	Supercritical Pulverized Coal
SCR	Selective Catalytic Reduction
SIL	Significant Impact Limits
SIS	System Impact Study (Part of the MISO LGIP)
SiO_2	Silicon Dioxide
SNCR	Selective Non Catalytic Reduction
SO_2	Sulfur Dioxide
SRU	Sulfur Recovery Unit
STG	Steam Turbine Generator
SPL	Sound Pressure Level
SV	Stack Vent
Syngas	Synthetic Gas
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TiO_2	Titanium Dioxide
TOC	Total Organic Carbon
TP	Total Phosphorous
TPY	Tons Per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate Matter
TSS	Total Suspended Solids
TTRA	Taconite Tax Relief Area
TVB	Tank Vent Boilers
V_2O_5	Vanadium Pentoxide
VOC	Volatile Organic Compounds
WWTF	Waste Water Treatment Facility
ZLD	Zero Liquid Discharge

1. INTRODUCTION

Excelsior Energy Inc. ("Excelsior"), on behalf of its wholly-owned subsidiaries, MEP-I LLC and MEP-II LLC (MEP-I LLC and MEP-II LLC, together, the "Applicant" or the "Company") respectfully submits and hereby applies to the Minnesota Public Utilities Commission ("MPUC") for site permits to construct and operate at a site in Northeastern Minnesota a 1,212 megawatt$_{(net)}$ ("MW)" integrated gasification combined cycle ("IGCC") electric power generating station (hereafter, the "IGCC Power Station" or "Station"), its associated high-voltage transmission lines ("HVTL" or "HVTLs"), and a natural gas pipeline. The IGCC Power Station consists of Phase I and Phase II of the Mesaba Energy Project (hereafter, "Mesaba One" and "Mesaba Two," respectively) each phase of which is nominally rated at peak to deliver 606 MW of electricity to the bus bar of the high voltage switchyard located within the Station's fenced boundary.

The site at which the IGCC Power Station will be constructed and the HVTL routes to be used to interconnect the Station to the regional electric grid (hereafter, the point of interconnection or "POI") must be determined in accordance with procedures established under the Minnesota Power Plant Siting Act (Minn. Stat. §§ 116C.51-.69) and Minn. R. ch. 4400 (the "Applicable Rules").

In accordance with the Applicable Rules, the Applicant is proposing two locations at which the IGCC Power Station could be constructed and is providing an Application containing the necessary information to secure both a Large Electric Power Generating Plant ("LEPGP") Site Permit and HVTL Route Permits (collectively, the "PPSA Permit Application") at each of the two locations. The Applicant is designating the West Range Site as its preferred Site, and this PPSA Permit Application provides details on and justification for such designation. Further, this Application and the analysis contained in various pre-construction permit applications for air, water, and water appropriation permits, demonstrates that both sites are licensable and will not violate air emissions or wastewater discharge standards.

Because use of natural gas is required for starting up Mesaba One and Mesaba Two, and as a backup fuel for the Station, both of the proposed Sites will require construction of a natural gas pipeline to obtain such fuel. However, only the preferred Site (the West Range Site) will require the Applicant to obtain a pre-construction pipeline routing permit (the procedures for preparing a Pipeline Routing Permit Application and the decision-making criteria for the issuance of such a permit are governed by Minn. Stat. § 116I and rules promulgated at Minn. R. ch. 4415 (together, the "Pipeline Rules")). At the Applicant's preferred West Range Site, the associated natural gas pipeline may be constructed and owned by the Applicant or by a municipal entity or entities, or their respective municipal gas utilities. At the Applicant's alternate site (the East Range Site), the associated natural gas pipeline would be constructed and owned by an interstate natural gas pipeline company, and therefore would be licensed by the Federal Energy Regulatory Commission ("FERC") using the process outlined in Section 1.10.2.8. No state pipeline routing permit would be required for the East Range Site.

The PPSA Permit Application and Pipeline Routing Permit Application requirements and an application completeness checklist are presented below:

Application Content Requirement and Completeness Checklist

APPLICATION REQUIREMENTS	APPLICATION SECTION
LEPGP Site Permit Application Requirements (Minn. R. 4400.1150, Subp. 1)	
A. A statement of proposed ownership of the facility as of the day of filing and after commercial operation.	1.4 Statement of Ownership
B. The precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated.	1.4 Statement of Ownership
C. At least two proposed sites for the proposed large electric power generating plant and identification of the applicant's preferred site and the reasons for preferring the site.	Section 2 Overview of Sites and Routes 2.7 Summary Comparison of West Range and East Range Sites
D. A description of the proposed large electric power generating plant and all associated facilities, including the size and type of the facility.	Section 1 Introduction Section 3 Generating Plant Engineering and Operational Design
E. The environmental information required under subpart 3.	Section 7 West Range (Preferred) Site Environmental Impacts Section 8 East Range (Alternate) Site Environmental Impacts
F. The engineering and operational design for the large electric power generating plant at each of the proposed sites.	Section 3 Generating Plant Engineering and Operational Design
G. A cost analysis of the large electric power generating plant at each proposed site, including the costs of constructing and operating the facility that are dependent on design and site.	2.8 IGCC Power Station Cost Estimate
H. An engineering analysis of each of the proposed sites, including how each site could accommodate expansion of generating capacity in the future.	1.9 Future Expansion 1.9.1 LEPGP Sites Section 3 Generating Plant Engineering and Operational Design (especially 3.2 IGCC Power Station Footprint)

APPLICATION REQUIREMENTS	APPLICATION SECTION
I. Identification of transportation, pipeline, and electrical transmission systems that will be required to construct, maintain, and operate the facility.	Section 2 Overview of Sites and Routes Section 3 Generating Plant Engineering and Operational Design (especially 3.5 Transportation Infrastructure and 3.6 Water Supply and Water/Wastewater Management Infrastructure)
J. A listing and brief description of federal, state, and local permits that may be required for the project at each proposed site.	1.10 Other Permits
K. A copy of the Certificate of Need for the project from the Public Utilities Commission or documentation that an application for a Certificate of Need has been submitted or is not required.	1.10.1 Innovative Energy Projects and Their Exemption from Certificate of Need Procedures
HVTL Route Permit Application Requirements (Minn. R. 4400.1150, Subp. 2)	
A. A statement of proposed ownership of the facility at the time of filing the application and after commercial operation.	1.4 Statement of Ownership
B. The precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated.	1.4 Statement of Ownership
C. At least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference.	Section 2 Overview of Sites and Routes 2.7 Summary Comparison of West Range and East Range Sites
D. A description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line.	Section 1 Introduction Section 4 Transmission Line Engineering and Operational Design
E. The environmental information required under subpart 3.	Section 7 West Range (Preferred) Site Environmental Impacts Section 8 East Range (Alternate) Site Environmental Impacts
F. Identification of land uses and environmental conditions along the proposed routes.	Section 7 West Range (Preferred) Site Environmental Impacts Section 8 East Range (Alternate) Site Environmental Impacts
G. The names of each owner whose property is within any of the proposed routes for the high voltage transmission line.	To be included on notification list.

APPLICATION REQUIREMENTS	APPLICATION SECTION
H. United States Geological Survey topographical maps or other maps acceptable to the chair showing the entire length of the high voltage transmission line on all proposed routes.	Figure 2.2-1 West Range Preferred and Alternate HVTL Routes with Milepost Indicators Figure 2.2-5 East Range Preferred and Alternate HVTL Routes and Proposed Natural Gas Pipeline Route with Milepost Indicators
I. Identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share the right-of-way with the proposed line.	2.5.3 [West Range] HVTL Routes 2.6.3 [East Range] HVTL Routes
J. The engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line.	Section 4 Transmission Line Engineering and Operational Design
K. Cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route.	2.8 Transmission Line Cost Estimates
L. A description of possible design options to accommodate expansion of the high voltage transmission line in the future.	1.9 Future Expansion 1.9.2 HVTL Routes
M. The procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line.	4.4 Transmission Line Construction 9.5 Transmission Line Operation and Maintenance
N. A listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line.	1.8.2 Other Permits
O. A copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required.	1.10.1 Innovative Energy Projects and Their Exemption from Certificate of Need Procedures
Environmental Information Requirements for both Site and Route Permit Applications (Minn. R. 4400.1150, Subp. 3)	
A. A description of the environmental setting for each site or route.	Section 7 West Range (Preferred) Site Environmental Impacts Section 8 East Range (Alternate) Site Environmental Impacts

APPLICATION REQUIREMENTS	APPLICATION SECTION
B. A description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services.	Non-Site-Specific Information 6.1 Regional Social and Economic Impacts 6.2 Electric and Magnetic Fields West Range Site 7.1 Land Use 7.2 Nearby Residences and Other Significant Receptors 7.2.9 Displacement 7.3 Aesthetics 7.4 Air Quality 7.9 Noise 7.10 Transportation and Traffic 7.11.1 Public Services 7.11.3 Population Trends and Demographics East Range Site 8.1 Land Use 8.2 Nearby Residences and Other Receptors 8.3 Aesthetics 8.4 Air Quality 8.9 Noise 8.10 Transportation and Traffic 8.11.1 Public Services 8.11.3 Population Trends and Demographics
C. A description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining.	Section 6.1.11 Effects on Agriculture, Forestry, Tourism and Mining
D. A description of the effects of the facility on archaeological and historic resources.	West Range Site 7.11.2 Archaeological and Historical Resources East Range Site 8.11.2 Archaeological and Historical Resources

APPLICATION REQUIREMENTS	APPLICATION SECTION
E. A description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna.	West Range Site 7.4 Air Quality 7.5 Geology and Soils 7.6 Water Resources and Water Quality 7.7 Wetlands 7.8 Ecological Resources: Plants, Animals and Endangered Species East Range Site 8.4 Air Quality 8.5 Geology and Soils 8.6 Water Resources and Water Quality 8.7 Wetlands 8.8 Ecological Resources: Plants, Animals and Endangered Species
F. A description of the effects of the facility on rare and unique natural resources.	West Range Site 7.8.3 Rare and Unique Natural Resources East Range Site 8.8.3 Rare and Unique Natural Resources
G. Identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route.	Section 2.7 Summary Comparison of West Range and East Range Sites Section 7 West Range (Preferred) Site Environmental Impacts Section 8 East Range (Alternate) Site Environmental Impacts
H. A description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures.	Section 2.7 Summary Comparison of West Range and East Range Sites Section 3 Generating Plant Engineering and Operational Design Section 4 Transmission Line Engineering and Operational Design Section 5 Gas Pipeline Engineering and Operational Design Section 6 Non-Site Specific Environmental Information Section 7 West Range (Preferred) Site Environmental Impacts Section 8 East Range (Alternate) Site Environmental Impacts

APPLICATION REQUIREMENTS		APPLICATION SECTION
Information Requirements for Pipeline Route Permit Applications (Minn. R. Chapter 4415)		
4415.0115	GENERAL INFORMATION	
Subp. 1.	Cover letter. Each application must be accompanied by a cover letter signed by an authorized representative or agent of the applicant. The cover letter must specify the type, size, and general characteristics of the pipeline for which an application is submitted.	Cover letter
Subp. 2.	Title page and table of contents. Each application must contain a title page and a complete table of contents.	Title Page and Table of Contents
Subp. 3.	Statement of ownership. Each application must include a statement of proposed ownership of the pipeline as of the day of filing and an affidavit authorizing the applicant to act on behalf of those planning to participate in the pipeline project.	1.4.1 Statement of Ownership Exhibit 1 Affidavit of Authorization
Subp. 4.	Background information. Each application must contain the following information.	1.4.1 Statement of Ownership
A.	The applicant's complete name, address, and telephone number.	1.4.1 Statement of Ownership
B.	The complete name, title, address, and telephone number of the authorized representative or agent to be contacted concerning the applicant's filing.	1.4.1 Statement of Ownership
C.	The signatures and titles of persons authorized to sign the application, and the signature of the preparer of the application if prepared by an outside representative or agent.	1.4.1 Statement of Ownership
D.	A brief description of the proposed project which includes:	Section 1 Introduction 2.5.4 West Range Proposed Natural Gas Pipeline Route
(1)	General location.	2.5.4.1 General Location
(2)	Planned use and purpose.	2.5.4.2 Planned Use and Purpose
(3)	Estimated cost.	5.8 Estimated Cost

APPLICATION REQUIREMENTS		APPLICATION SECTION
(4)	Planned in-service date.	2.5.4.1 Planned In-Service Date
(5)	General design and operational specifications for the type of pipeline for which an application is submitted.	2.5.4.5 General Design and Operational Specifications
4415.0120	DESCRIPTION OF PROPOSED PIPELINE AND ASSOCIATED FACILITIES.	Section 5 Natural Gas Pipeline Engineering and Operational Design
Subp. 1.	Pipeline design specifications. The specifications for pipeline design and construction are assumed to be in compliance with all applicable state and federal rules or regulations unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the anticipated pipeline design specifications must include but are not limited to:	5.1 Pipeline Design Specifications
A.	Pipe size (outside diameter) in inches.	
B.	Pipe type.	
C.	Nominal wall thickness in inches.	
D.	Pipe design factor.	
E.	Longitudinal or seam joint factor.	
F.	Class location and requirements, where applicable.	
G.	Specified minimum yield strength in pounds per square inch.	
H.	Tensile strength in pounds per square inch.	
Subp. 2.	Operating pressure. Operating pressure must include:	5.2 Operating Pressure
A.	Operating pressure (psig).	
B.	Maximum allowable operating pressure (psig).	
Subp. 3.	Description of associated facilities. For public information purposes, the applicant shall provide a general description of all pertinent associated facilities on the right-of-way.	5.3 Associated Facilities

APPLICATION REQUIREMENTS		APPLICATION SECTION
Subp. 4.	Product capacity information. The applicant shall provide information on planned minimum and maximum design capacity or throughput in the appropriate unit of measure for the types of products shipped as defined in part 4415.0010.	5.4 Product Description and Capacity Information
Subp. 5.	Product description. The applicant shall provide a complete listing of products the pipeline is intended to ship and a list of products the pipeline is designed to transport, if different from those intended for shipping.	5.4 Product Description and Capacity Information
Subp. 6.	Material safety data sheet. For each type of product that will be shipped through the pipeline, the applicant shall provide for public information purposes the material identification, ingredients, physical data, fire and explosive data, reactivity data, occupational exposure limits, health information, emergency and first aid procedures, transportation requirements, and other known regulatory controls.	5.4 Product Description and Capacity Information Appendix 4 Natural Gas Pipeline Products Material Safety Data Sheets
4415.0125	LAND REQUIREMENTS. For the proposed pipeline, the applicant shall provide the following information:	5.5 Land Requirements
A.	Permanent right-of-way length, average width, and estimated acreage.	
B.	Temporary right-of-way (workspace) length, estimated width, and estimated acreage.	
C.	Estimated range of minimum trench or ditch dimensions including bottom width, top width, depth, and cubic yards of dirt excavated.	
D.	Minimum depth of cover for state and federal requirements.	
E.	Rights-of-way sharing or paralleling: type of facility in the right-of-way, and the estimated length, width, and acreage of the right-of-way.	

APPLICATION REQUIREMENTS		APPLICATION SECTION
4415.0130	PROJECT EXPANSION. If the pipeline and associated facilities are designed for expansion in the future, the applicant shall provide a description of how the proposed pipeline and associated facilities may be expanded by looping, by additional compressor and pump stations, or by other available methods.	1.9 Future Expansion
4415.0135	RIGHT-OF-WAY PREPARATION PROCEDURES AND CONSTRUCTION ACTIVITY SEQUENCE. Each applicant shall provide a description of the general right-of-way preparation procedures and construction activity sequence anticipated for the proposed pipeline and associated facilities.	5.6 Gas Pipeline Construction
4415.0140	LOCATION OF PREFERRED ROUTE AND DESCRIPTION OF ENVIRONMENT.	
Subp.1.	Preferred route location. The applicant must identify the preferred route for the proposed pipeline and associated facilities, on any of the following documents which must be submitted with the application:	Section 1 Introduction 2.5.4 Natural Gas Pipeline Routes Figure 2.5-17
A.	United States Geological Survey topographical maps to the scale of 1:24,000, if available.	Figure 2.5-17 West Range Natural Gas Pipeline Route Milepost Map
B.	Minnesota Department of Transportation county highway maps.	Not included (see item C.)
C.	Aerial photos or other appropriate maps of equal or greater detail in items A and B. The maps or photos may be reduced for inclusion in the application. One full-sized set shall be provided to the PUC.	Figure 2.5-13 West Range Proposed Natural Gas Pipeline Route: Segment 1 Figure 2.5-14 West Range Proposed Natural Gas Pipeline Route: Segment 2 Figure 2.5-15 West Range Proposed Natural Gas Pipeline Route: Segment 3 Figure 2.4-16 West Range Proposed Natural Gas Pipeline Route: Segment 4

APPLICATION REQUIREMENTS		APPLICATION SECTION
Subp. 2.	Other route locations. All other route alternatives considered by the applicant must be identified on a separate map or aerial photos or set of maps and photos or identified in correspondence or other documents evidencing consideration of the route by the applicant.	Figure 2.5-18 West Range Alternate Natural Gas Pipeline Route: NNG No. 2, Segment 1 Figure 2.5-19 West Range Alternate Natural Gas Pipeline Route: NNG No. 2, Segment 2 Figure 2.5-20 West Range Alternate Natural Gas Pipeline Route: NNG No. 2, Segment 3 Figure 2.5-21 West Range Alternate Natural Gas Pipeline Route: NNG No. 2, Segment 4 Figure 2.5-22 West Range Alternate Natural Gas Pipeline Route: NNG No. 3, Segment 1 Figure 2.5-23 West Range Alternate Natural Gas Pipeline Route: NNG No. 3, Segment 2 Figure 2.5-24 West Range Alternate Natural Gas Pipeline Route: NNG No. 3, Segment 3
Subp. 3.	Description of environment. The applicant must provide a description of the existing environment along the preferred route.	Section 7 West Range (Preferred) Site Environmental Impacts
4415.0145	ENVIRONMENTAL IMPACT OF PREFERRED ROUTE. The applicant must also submit to the PUC along with the application an analysis of the potential human and environmental impacts that may be expected from pipeline right-of-way preparation and construction practices and operation and maintenance procedures. These impacts include but are not limited to the impacts for which criteria are specified in part 4415.0040 or 4415.0100.	Section 7 West Range (Preferred) Site Environmental Impacts
4415.0150	RIGHT-OF-WAY PROTECTION AND RESTORATION MEASURES.	

APPLICATION REQUIREMENTS		APPLICATION SECTION
Subp.1.	Protection. The applicant must describe what measures will be taken to protect the right-of-way or mitigate the adverse impacts of right-of-way preparation, pipeline construction, and operation and maintenance on the human and natural environment.	5.6 Natural Gas Pipeline Construction
Subp. 2.	Restoration. The applicant must describe what measures will be taken to restore the right-of-way and other areas adversely affected by construction of the pipeline.	5.6 Natural Gas Pipeline Construction
4415.0160	OPERATION AND MAINTENANCE. Pipeline operations and maintenance are assumed to be in compliance with all applicable state and federal rules or regulations, unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the applicant must provide a general description of the anticipated operation and maintenance practices planned for the proposed pipeline.	5.7 Natural Gas Pipeline Operation and Maintenance
4415.0165	LIST OF GOVERNMENT AGENCIES AND PERMITS. Each application must contain a list of all the known federal, state, and local agencies or authorities and titles of the permits they issue that are required for the proposed pipeline and associated facilities.	1.10.2 Other Permits
4415.0040, Subp.3	CRITERIA FOR PARTIAL EXEMPTION FROM PIPELINE ROUTE SELECTION PROCEDURES.	
A.	Human settlement, existence and density of populated areas, existing and planned future land use, and management plan.	7.1 Land Use 7.2 Nearby Residences and Other Receptors 7.11.1 Public Services 7.11.3 Population Trends and Demographics

APPLICATION REQUIREMENTS		APPLICATION SECTION
B.	The natural environment, public and designated lands, including but not limited to natural areas, wildlife habitat, water, and recreational land.	7.5 Geology and Soils 7.6 Water Resources and Water Quality 7.7 Wetlands 7.8 Ecological Resources: Plants, Animals and Endangered Species
C.	Lands of historical, archaeological, and cultural significance.	7.8.3 Rare and Unique Natural Resources
D.	Economies within the route, including agricultural, commercial or industrial, forestry, recreational, and mining operations.	6.1 Regional Social and Economic Impacts
E.	Pipeline cost and accessibility.	5.8 Natural Gas Pipeline Cost Estimate
F.	Use of existing rights-of-way and right-of-way sharing or paralleling.	5.5 Land Requirements
G.	Natural resources and features.	7.5 Geology and Soils 7.6 Water Resources and Water Quality 7.7 Wetlands 7.8 Ecological Resources: Plants, Animals and Endangered Species
H.	The extent to which human or environmental effects are subject to mitigation by regulatory control and by application of the permit conditions contained in part 4415.0185 for pipeline right-of-way preparation, construction, cleanup, and restoration practices.	5.6 Natural Gas Pipeline Construction Section 7 West Range (Preferred) Site Environmental Impacts
I.	Cumulative potential effect of related or anticipated future pipeline construction.	Not applicable
J.	Relevant policies, rules, and regulations of the state and federal agencies and local government land use laws including ordinances adopted under Minnesota Statutes, section 299J.05, relating to the location, design, construction, or operation of the proposed pipeline and associated facilities.	1.10 Other Project Approvals and Permits Section 7 West Range (Preferred) Site Environmental Impacts

1.1 JOINT PROCEEDING REQUEST

The Applicant submits with this application detailed information in compliance with the Power Plant Siting Act, Applicable Rules, and Pipeline Rules, and requests issuance of LEPGP Site Permit for Mesaba One and Mesaba Two, a HVTL Route Permit and a Pipeline Route Permit (the latter being applicable only to the West Range Site). The PPSA Permit Application and the Pipeline Routing Permit Application are hereafter collectively referred to as the "Joint Application" or the "Application," and the Company requests that the Application be processed in a joint proceeding in accordance with Minn. R. 4400.0675. The Company also submits with this Joint Application the filing fees prescribed in the Applicable Rules and in Minn. R. ch. 4415.

For the preferred LEPGP Site (the West Range Site), the Applicant is requesting a partial exemption for the pipeline routing permit in accordance with Minn. Stat. § 116I.015, subd. 2, as implemented through Minn. R. 4415.0035 to 4415.0040.

1.2 ENVIRONMENTAL SUPPLEMENT

Environmental information to support this Joint Application is submitted in the form of an Environmental Supplement ("ES"). The ES prepared in conjunction with the Joint Application contains more extensive detail regarding the proposed technology, its associated infrastructure, and the environmental impacts associated with Mesaba One and Mesaba Two. The Application incorporates the ES by reference and summarizes the information necessary to evaluate the proposed LEPGP Sites and associated HVTL/Pipeline routes and their potential human and environmental impacts, and compares these impacts with other reasonable alternatives. In addition, detailed information and assumptions regarding air emission control requirements, emissions, and modeling results are contained in the separate application for a Part 70/New Source Review Construction Authorization Permit submitted to the Minnesota Pollution Control Agency ("MPCA") and attached to the Application as Appendix 5. Detailed descriptions of wastewater treatment, discharge volumes, and potential impacts on receiving waterbodies are contained in the separate application for a National Pollutant Discharge Elimination System ("NPDES") permit submitted to the MPCA and attached to the Application as Appendix 6. These and other detailed permit application documents are available from the applicable regulatory agencies upon request and will be made available on the Excelsior Energy Inc. web site: www.excelsiorenergy.com.

1.3 TERMINOLOGY

Consistent with the terms used in the ES, in this Application the terms "Project" or "Mesaba One" will be used synonymously with the phrases "Phase I IGCC Power Station" and "Phase I Development." The term "Mesaba Two" will be used synonymously with the phrases "Phase II IGCC Power Station" and "Phase II Development." The combined Phase I and Phase II Developments will be used synonymously with the term "Mesaba One and Mesaba Two" and the phrase "Phase I and II IGCC Power Station." The phrase "IGCC Power Station" or "Station" will be used where the context with respect to Mesaba One, Mesaba Two, or both is obvious or where the context regarding the site being discussed is obvious. The term "IGCC Power Station Footprint" or "Station Footprint" means the fenced area within which the IGCC Power Station is located. "Buffer Land" means the land area contiguous with or adjacent to the IGCC Power

Station Footprint, extending to the boundary of the property controlled by the Applicant and upon which limited Station-related activity occurs. The term "Associated Facilities" means the buildings, equipment, and other physical structures that are necessary to operate of the Station and includes, without limitation, the equipment identified in Sections 3.1.5, 3.1.6, and 3.1.7; fuel tanks; roads; water supply and wastewater discharge pipelines, pumps, pump houses, metering equipment, valves, and force mains; water intake structures (floating or permanent); wastewater discharge structures; flood control systems; and security systems. "Water Resources" means potable water supplies and source/receiving waterbodies required to support construction and operation of the IGCC Power Station. Finally, the term "Site" means the land area which includes the IGCC Power Station Footprint, Buffer Land, any other land needed or acquired for the Associated Facilities, and the "Additional Land" (land needed to interconnect Mesaba One and Mesaba Two with existing transportation [railroad and highway] infrastructure and to provide for use of Water Resources and other essential utilities).

1.4 STATEMENT OF OWNERSHIP

1.4.1 LEPGP, HVTL and Natural Gas Pipeline

Excelsior is an energy development company with offices located at 11100 Wayzata Boulevard, Suite 305, Minnetonka, Minnesota 55305. Excelsior's contact with respect to all elements of the Application is as follows:

Mr. Robert S. Evans II
Vice President, Environmental Affairs

Telephone :	(952) 847-2355
Facsimile :	(952) 847-2373
Mobile Phone:	(612) 859-1383
Email Address:	BobEvans@excelsiorenergy.com

Excelsior has created two wholly-owned project companies, MEP-I LLC and MEP-II LLC that will construct, own, and operate Mesaba One and Mesaba Two, respectively. It is currently contemplated that MEP-I LLC and MEP-II LLC will also co-own and operate the HVTLs and the natural gas pipeline that are the subject of this Application, although the latter may be constructed and owned by a municipal entity. For purposes of the Joint Application, MEP-I LLC and MEP-II LLC will be co-applicants and co-permittees for the Site Permit, HVTL Route Permit, and Natural Gas Pipeline Route Permit associated with Mesaba One and Mesaba Two. The address of MEP-I LLC and MEP-II LLC is: c/o Excelsior Energy Inc., 11100 Wayzata Boulevard, Suite 305, Minnetonka, Minnesota 55305, attn: Mr. Robert S. Evans II.

In fulfillment of Minn. R. 4415.0115, subp. 4.C., the signatures and titles of persons authorized to sign the application appear below. Excelsior has provided in the preceding paragraph a statement of ownership of the natural gas pipeline pursuant to Minn. R. 4415.0115, subp. 3.

Authorized Signatures:

MEP-I LLC

By: ______________________________ Date: ___________________________
Robert S. Evans II
Its: Vice President, Environmental Affairs

MEP-II LLC

By: ______________________________ Date: ___________________________
Robert S. Evans II
Its: Vice President, Environmental Affairs

1.4.2 Current Land Ownership

1.4.2.1 LEPGP Site

1.4.2.1.1 West Range

The IGCC Power Station Footprint and Buffer Land is located upon approximately 1,260 acres of land currently owned in fee simple or through undivided interests by RGGS Land & Minerals Ltd. L.P. ("hereafter "RGGS"). Within the 1,260 acres approximately 260 acres is held in undivided ownership interest. Excelsior holds an option to purchase RGGS's interest in these 1,260 acres of land. Additional Lands upon which the Associated Facilities are located or across which they traverse are owned by various public and private entities. Public entity owners include Itasca County and the State of Minnesota. Private entities include individual citizens, trusts, and industrial companies.

1.4.2.1.2 East Range

The IGCC Power Station Footprint and Buffer Land is located on approximately 810 acres of land currently owned by Cliffs Erie, LLC (hereafter "CE"). Lands upon which the Associated Facilities are located or across which they traverse are owned by public and private entities. Public entity owners include St. Louis County and the State of Minnesota. Private entities include, but are not limited to individual citizens, RGGS, and CE.

1.4.2.2 HVTL Routes

1.4.2.2.1 West Range

The Applicant has identified property owners within one-quarter mile of the centerline alignment of each HVTL route proposed to interconnect the West Range IGCC Power Station with the Blackberry Substation. The owners of land within or adjacent to and contiguous with each route include various public and private entities. Public entity owners include Itasca County and the State of Minnesota. Private entities include individual citizens, trusts, and industrial companies.

1.4.2.2.2 East Range

The Applicant has identified property owners within one-quarter mile of the centerline of each HVTL route proposed to interconnect the East Range IGCC Power Station with the Forbes Substation. The owners of land within or adjacent to and contiguous with each route include various public and private entities. Public entity owners include St. Louis County and the State of Minnesota. Private entities include individual citizens, trusts, and industrial companies.

1.5 MESABA ONE AND MESABA TWO

1.5.1 Location of IGCC Power Station

Both the preferred and alternate sites for the IGCC Power Station are located in the Taconite Tax Relief Area ("TTRA") of Northeastern Minnesota in conformance with Minn. Stat. § 216B.1694. Figure 1.5-1 shows the boundary of the TTRA and the two locations where the Applicant proposes to construct the Station. In deference to their geographical relationship and location on the Iron Range, the Applicant has designated the western-most location as its West Range Site and the eastern-most location as its East Range Site. As noted above, the Applicant has chosen the West Range Site as its preferred location on which to construct Mesaba One and Mesaba Two. A comprehensive comparison between the West Range and East Range Sites that lead to this conclusion is provided in Section 2.7. Site vicinity maps for the West Range and East Range Sites are provided in Figures 1.3-2 and 1.3-3. Both Sites are currently undeveloped and unoccupied, and are located in the immediate vicinity of former iron ore mining operations.

1.5.2 Power Exported to Grid from Mesaba One and Two

At the West Range Site, Mesaba One and Two are expected to deliver a total of 1,206 MW to the POI. Power delivered by Mesaba One and Two to the POI at the East Range Site is expected to be about 1,197 MW. The difference between the amount of power delivered to the West Range and East Range POIs is due to the East Range Station's added auxiliary power demands (see Section 3.6.1.2.1) and higher power losses associated with transmitting the station's electric output over longer distances required to reach its POI (see Section 4.1.5).

Figure 1.5-1 Minnesota Taconite Tax Relief Area

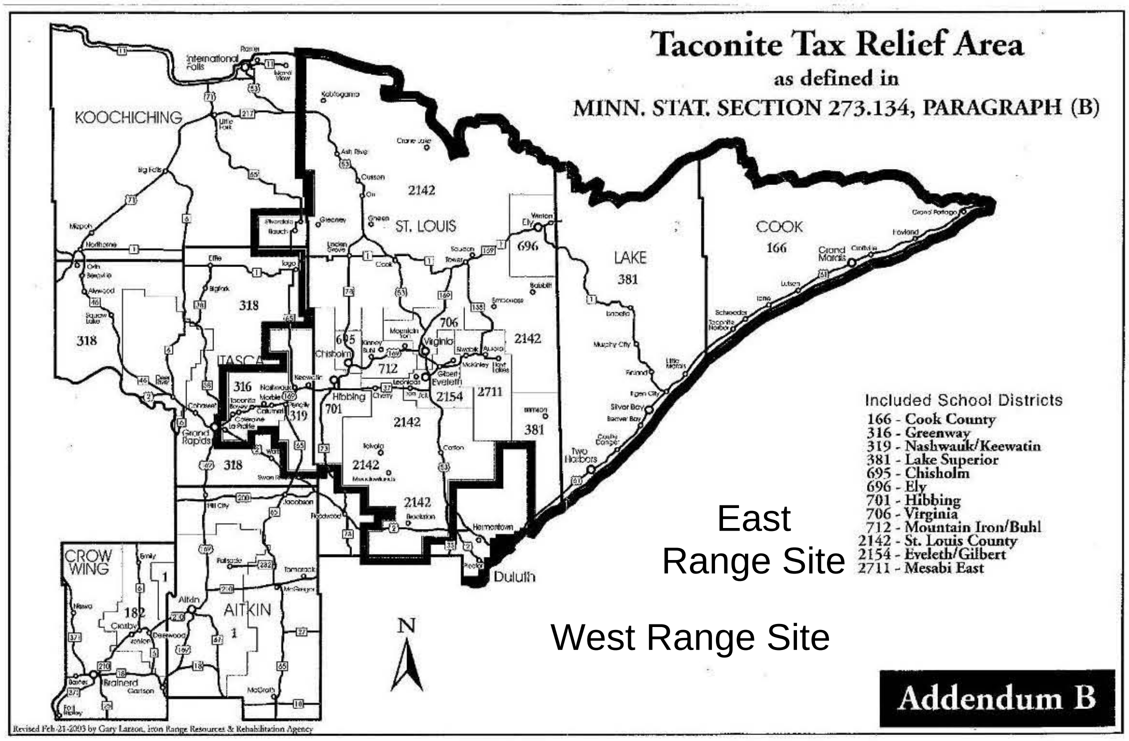


Figure 1.5-2 Site Vicinity Map for West Range Site

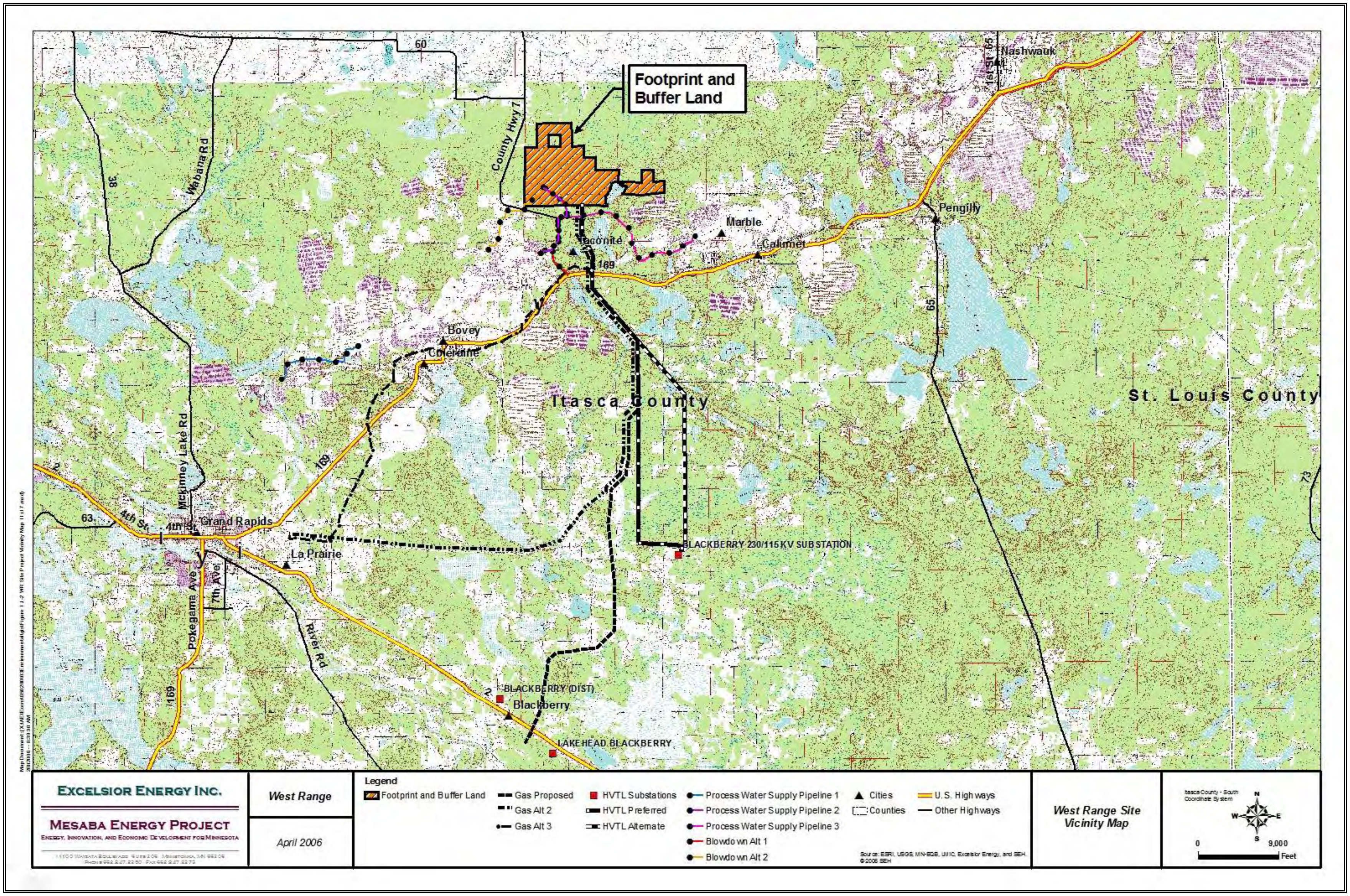
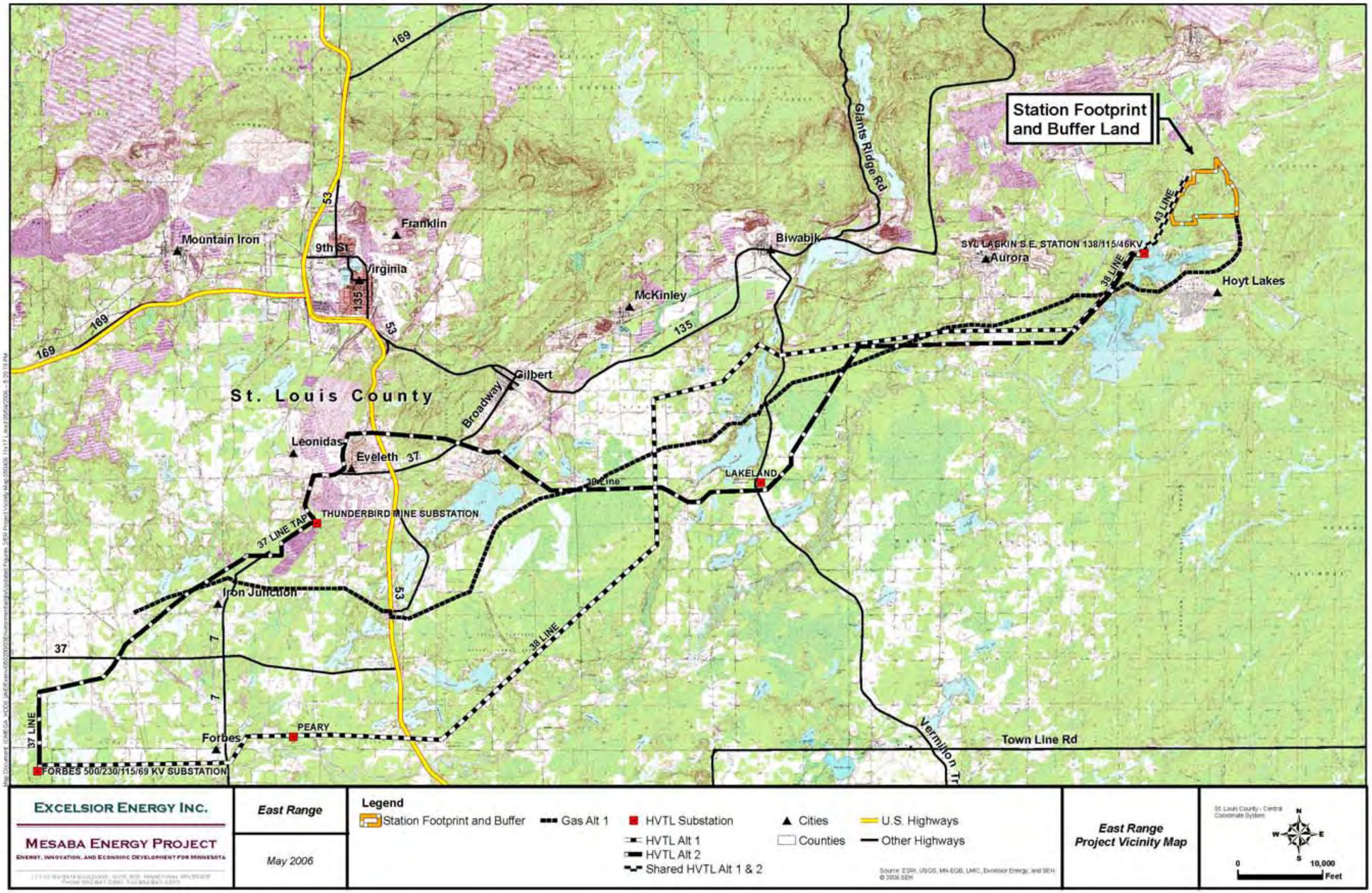


Figure 1.5-3 Site Vicinity Map for East Range Site



1.5.3 Mesaba One and Two Fuel Use and Process Overview

Mesaba One and Mesaba Two will be designed to be "fuel-flexible" in that they will be capable of interchangeably using the following feedstocks:

- 100% Coal (including, but not limited to, Powder River Basin sub-bituminous and Illinois No. 6 bituminous coals)
- Up to 50:50 coal: petroleum coke blend
- Petroleum coke
- Other blends of these feedstocks

1.5.3.1 Gasification and Generation Technology

The gasification process that the Company will use to supply fuel to its combined cycle power station is ConocoPhillips' E-Gas™ technology. In the E-Gas™ process, coal, petroleum coke, or blends of coal and petroleum coke are crushed, slurried with water, and pumped into a pressurized vessel (the gasifier) along with sub-stoichiometric amounts of purified oxygen (less than the theoretical quantity of oxygen required for complete combustion. In the gasifier controlled reactions take place, thermally converting feedstock materials into a gaseous fuel known as synthesis gas, or syngas. The syngas is cooled, cleaned of contaminants, and then combusted in a combustion turbine, which is directly connected to an electric generator. The assembly of the combustion turbine and generator is known as a combustion turbine generator ("CTG"). The expansion of hot combustion gases inside the combustion turbine creates rotational energy that spins the generator and produces electricity. The hot exhaust gases exiting the CTG pass through a heat recovery steam generator ("HRSG"), a type of boiler, where steam is produced. The resulting steam is piped to a steam turbine that is connected to an electric generator. The expansion of steam inside the steam turbine spins the generator to produce an additional source of electricity. When a CTG and a steam turbine generator ("STG") are operated in tandem at one location to produce electricity in a highly efficient manner, the combination of equipment is referred to as a combined cycle electric power plant. Combining the gasification process with the combined cycle power plant is known as IGCC, an inherently lower polluting technology to produce electricity from solid feedstocks.

1.6 CLEAN COAL POWER INITIATIVE

Mesaba One has been granted a $36 million Clean Coal Power Initiative ("CCPI") award in the form of an interest-free cost sharing loan from the U.S. Department of Energy ("DOE"). The DOE selected Mesaba One under the DOE's CCPI Round II competitive solicitation process. The CCPI is an innovative technology demonstration program designed to foster more efficient clean coal technologies[1] for use in new and existing U.S. electric power generating facilities.

[1] "Clean coal technology" describes a new generation of coal-based electricity producing processes that sharply reduce air emissions and other pollutants compared to conventional coal-burning systems.

1.7 ENVIRONMENTAL IMPACT STATEMENT REQUIREMENTS AND LICENSING SCHEDULE

DOE's National Energy Technology Laboratory ("NETL") is required by the National Environmental Policy Act ("NEPA") of 1969, as amended (42 U.S.C. 4321, *et seq.*), the Council on Environmental Quality NEPA regulations (40 Code of Federal Regulations [C.F.R.] Parts 1500-1508), and the DOE NEPA regulations (10 C.F.R. Part 1021) to prepare an environmental impact statement ("EIS") as part of its participation in the Mesaba Energy Project. Figure 1.7-1 illustrates the process to be undertaken by DOE in fulfillment of its NEPA responsibilities.

Because Mesaba One and Mesaba Two are considered LEPGPs, they are subject to the PPSA, which requires the preparation of a state-equivalent EIS. Figure 1.7-2 illustrates the process to be undertaken by the State in producing its EIS.

The EIS requirements under NEPA and the PPSA are substantially similar, and DOE will prepare, in cooperation with the Minnesota Department of Commerce and the Minnesota Public Utilities Commission, a joint EIS that will fulfill the requirements of both state and federal law. The Applicant is submitting the ES in support of the PPSA EIS and will submit an Environmental Information Volume ("EIV") in support of DOE's requirements.

A schedule showing the coordination between DOE and the MPUC's schedule is provided in Figure 1.7-3.

1.8 CONSTRUCTION SCHEDULE

The development of Mesaba One is organized into three periods: Period I (Project Definition and Preliminary Design Phase); Period II (Final Design and Construction); and Period III (Demonstration/Operation). The Applicant, in conjunction with the EPC Consortium, will carry out the implementation plan outlined in the Mesaba One Project Schedule, shown at Figure 1.8-1.

Construction of Mesaba One is scheduled to commence in the 1st quarter of 2008 with a commercial in-service date scheduled for the 4th quarter of 2011. The commercial in-service date for Mesaba Two is scheduled for 2013.

Figure 1.7-1 Federal EIS Process

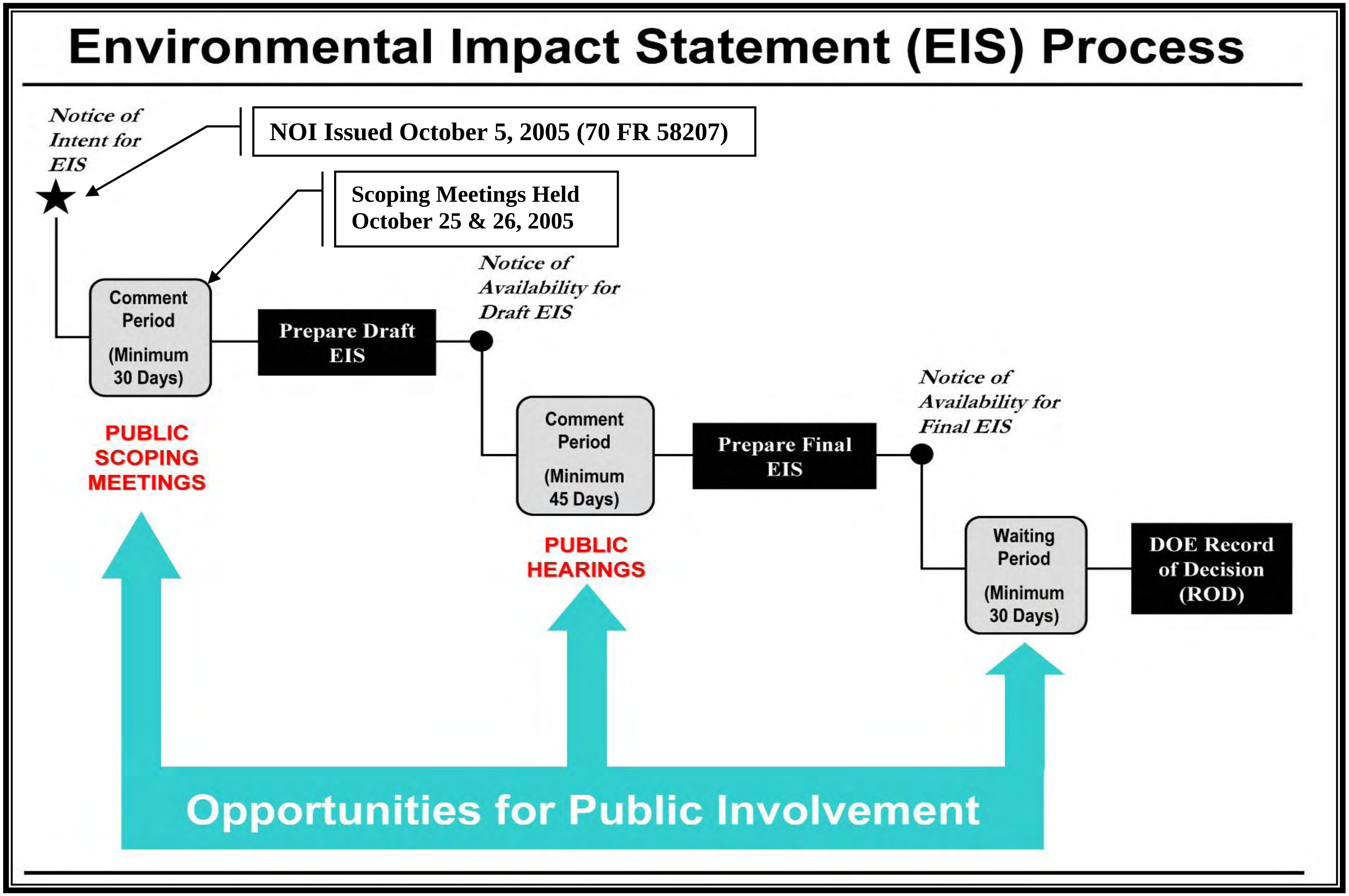


Figure 1.7-2 Minnesota Power Plant Siting Process

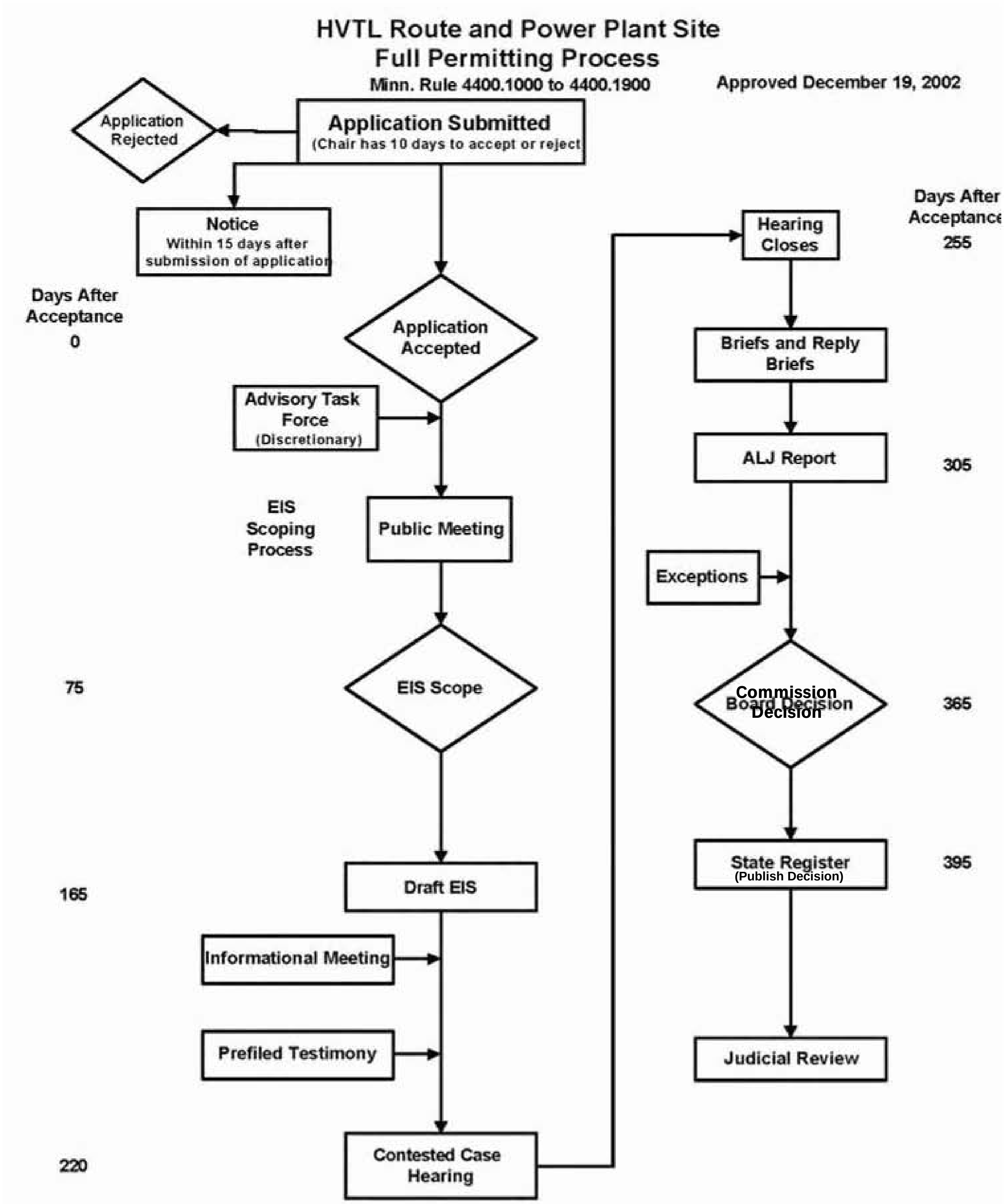


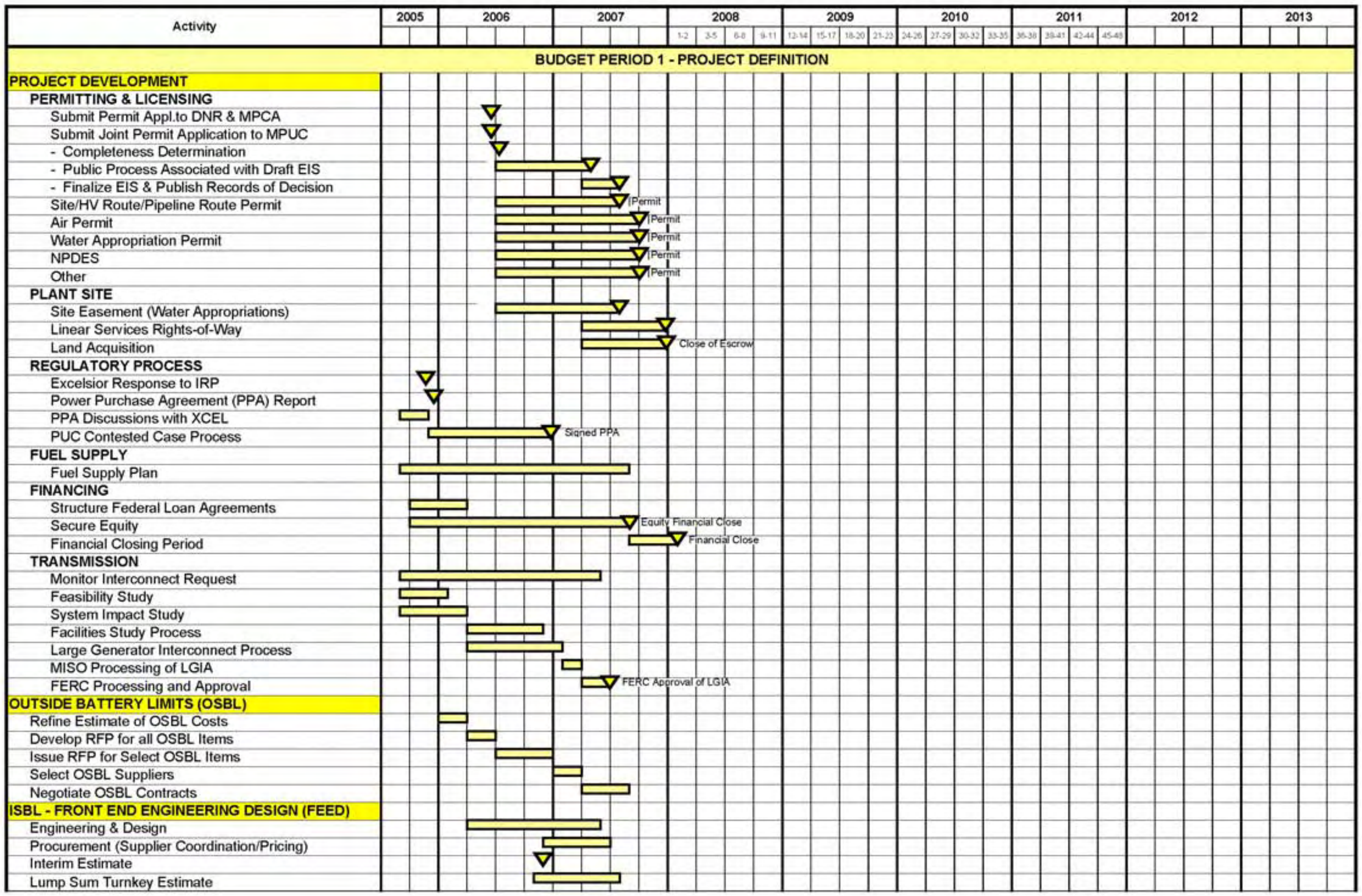
Figure 1.7-3 Coordinated DOE/MPUC Environmental Review Process

NEPA MILESTONE SCHEDULE		STATE EIS PROCESS	
• NOI to DOE/HQ	02 SEP 05		
• NOI Published in Federal Register	05 OCT 05		
• DOE Public Scoping Meeting	25-26 OCT 05		
• Scoping Ends	14 NOV 05		
		• Site/Route Permit Submitted	14 JUN 06
		• Permit Application Accepted	06 JUL 06
		• EIS Scope	07 AUG 06
		• State Scoping Meetings	21-22 AUG 06
		• State Scoping Period Ends	28 AUG 06
• NOA Published in FR	06 DEC 06		
		• Draft EIS	06 DEC 06
		• Public Hearings on Draft EIS	27-28 DEC 06
		• Contested Case Hearing	19 MAR 07
		• Hearing Closes	09 APR 07
• EIS NOA in FR	05 APR 07		
		• ALJ Report	09 MAY 07
• ROD Public Announcement	28 MAY 07		
		• PUC Final Decision	05 JUL 07
		• State Register	06 AUG 07

Figure 1.8-1 Project Schedule (Page 1 of 3)

EXCELSIOR ENERGY INC.
Mesaba Energy Project

PRELIMINARY EPC PROJECT MILESTONE SCHEDULE



June 06, 2006

Page 1 of 3

Figure 1.8-1 Project Schedule (Page 2 of 3)

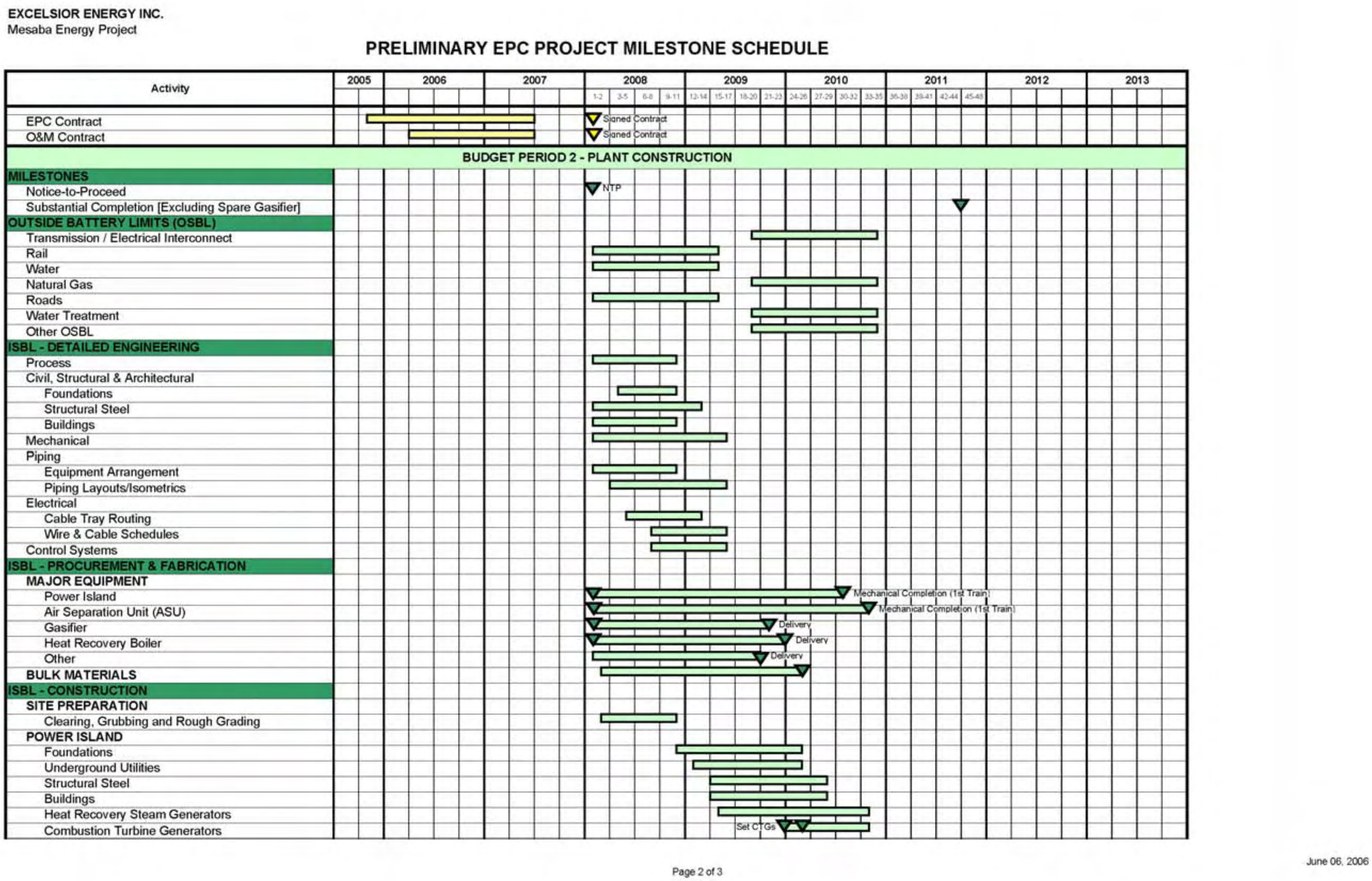
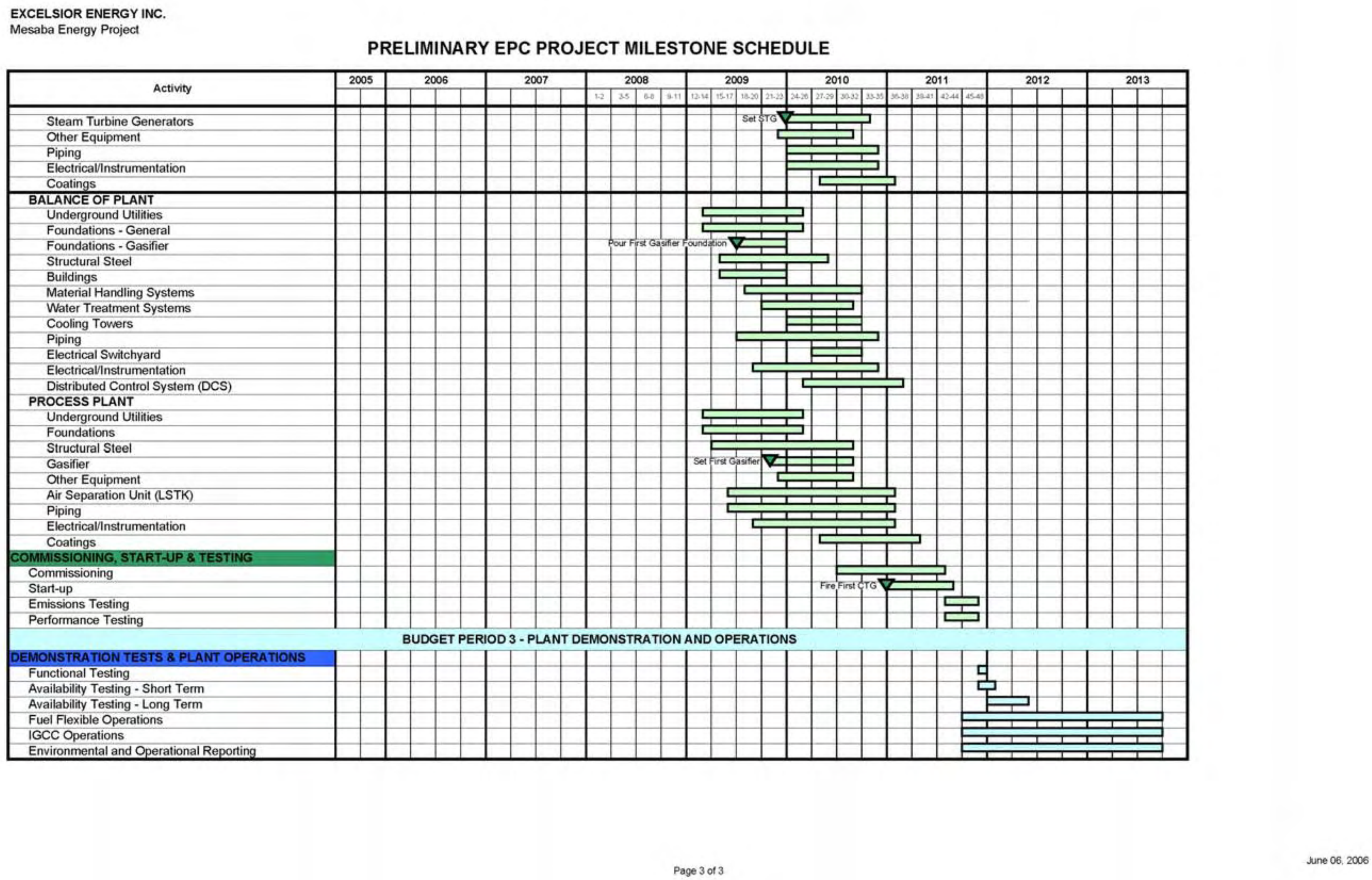


Figure 1.8-1 Project Schedule (Page 3 of 3)



1.8.1 Significant Milestones Achieved To Date

1.8.1.1 Permitting and Licensing

As shown in Figure 1.7-1, significant progress has been made with respect to the permitting and licensing of Mesaba One and Two, with the federal EIS process having commenced in October 2005. At or about the filing of this Joint Application, the Applicant will also have filed for its preferred site its air, water, and water appropriation permit applications with the appropriate state agencies.

1.8.1.2 Formation of Project EPC Consortium (Fluor, ConocoPhillips and Siemens)

The Applicant anticipates that front end engineering and design ("FEED") services; engineering, procurement, and construction ("EPC"); and operations and maintenance ("O&M") services for Mesaba One will be managed and performed by a consortium of Fluor Enterprises, Inc. ("Fluor") and Siemens Power Generation, Inc. ("Siemens"), with E-Gas™ technology and other design services supplied by ConocoPhillips Company ("ConocoPhillips"). Siemens would supply the power block for the project and together with Fluor will provide certain performance and schedule guarantees required for the project. Fluor will be the lead consortium manager for the detailed design, engineering, procurement and construction of the project under a firm price turnkey contract. Fluor, Siemens and ConocoPhillips have agreed in principle to support the project, and the Company expects to develop and enter into the appropriate binding contracts during 2006 and 2007.

The formation of the EPC Consortium is important in allowing the Applicant to design and engineer the facility in a cost-effective manner.

Fluor Corporation is one of the world's largest publicly owned engineering, procurement, construction, and maintenance services organizations and is consistently rated as one of the world's safest contractors. Over the past six years, Fluor has ranked No. 1 four times on FORTUNE magazine's America's Most Admired Companies list in the "Engineering, Construction" category. Engineering News Record magazine ranks Fluor among the top three on their Top Design Build Firms list and Top 100 Contractors by New Contracts list. In recent years, Fluor has built coal-fired and natural gas-fired power projects with a total capacity of more than 120,000 MW. Fluor has constructed more new power plants in the United States than any other EPC firm.

Siemens Power Generation is one of the world's leading specialists in providing planning, construction and upgrades of power plants; development, production and supply of components and systems; comprehensive plant services; I&C solutions and energy management systems; fuel cells; and turbines, compressors and full-scope solutions for industrial plants, in particular for the oil and gas industry. In 2005, Siemens posted overall sales of approximately $90 billion, and employed a worldwide workforce of 461,000. Siemens Power Generation employs 33,500 worldwide.

ConocoPhillips is one of the world's largest energy companies. Its gasification group, in its Technology Solutions Division, will provide support to the Project throughout the course of its development, design, construction, start-up, and operation. The gasification team at ConocoPhillips has more than 300 years of direct experience in the gasification field. The project manager, project engineer, process experts, plant manager, start-up manager, operations and production managers and shift superintendents from the Wabash River Coal Gasification Repowering Project ("Wabash River") are all with the business unit and will provide significant assistance to the Applicant in the design, permitting, start-up, and operation of the Mesaba Energy Project**.**

1.8.1.3 Selection of Site and Land Option Agreement

Excelsior has entered into an option agreement to purchase approximately 1,260 acres of undeveloped property at the West Range Site. Negotiations are currently underway with Cleveland Cliffs to secure option rights on the properties comprising the East Range Site.

1.8.1.4 Submission of Large Generator Interconnection Request

In October of 2004, Excelsior submitted a Large Generator Interconnection Procedure ("LGIP") request, numbered G477, for Mesaba One to the Midwest Independent System Operator (MISO) requesting network resource interconnection service with Minnesota Power's ("MP") control area from the proposed East Range Site, with the POI proposed at MP's Forbes 500kV/230kV Substation (hereafter, the "Forbes Substation"). This was followed in May 2005 with a second LGIP request (G519) for Mesaba One at the West Range Site, with the proposed POI at Minnesota Power's Blackberry 230kV Substation (hereafter, the "Blackberry Substation"). On February 14, 2006, Excelsior filed a third LGIP request for Mesaba Two at the West Range Site (formally logged as MISO Queue No. 38762-02 and designated as G597) to confirm the required network reinforcements for the Phase II development.[2]

1.8.1.5 West Range Site

At the Proponent's request (formally logged as MISO Queue No. 38491-01), the LGIP has been initiated and designated as G519). The N-1 contingency analysis conducted by MISO found that Mesaba One causes the Blackberry-Riverton 230kV circuit to overload. MISO has proposed adding a new 73 mile 230kV circuit from MP's Clay Boswell Station to the Riverton Substation (near Brainerd) to alleviate this and any other injection overloads. The N – 2 contingency analysis indicated that regional electric generators may be required to back down from their rated generating capacity to protect the HVTLs and protective equipment remaining on the system. The conclusion of the short circuit analysis is that the interconnection of Mesaba One at the Blackberry POI causes four breakers at the Nashwauk 115kV bus to become overdutied. The

[2] Network reinforcements are defined as upgrades to the existing transmission system designed to eliminate new constraints on existing generating resources that would otherwise interfere with the existing generator's capability to place into commerce the amount of energy it provided to existing load centers prior to introducing new generating capacity at a point intermediate to such pre-existing load centers.

following proposed network upgrades resolve all local injection issues identified in MISO's analysis for interconnecting Mesaba One as an Energy Resource: [3]

- Upgrade existing 115kV HVTL connecting Clay Boswell Station to Riverton Substation to 230kV HVTL
- Add new 230kV bus position for Boswell-Riverton line at Boswell
- Add new 230kV bus position for Boswell-Riverton line at Riverton
- Add new 230kV substation at Hill City
- Replace 4 115kV circuit breakers at Nashwauk.

Additional deliverability studies will be performed to determine whether Mesaba One can be designated as a network resource.

1.8.1.5.1 East Range Site

MISO has recently completed the SIS conducted as part of the LGIP. The study conducted by MISO assumed that Mesaba One had a summer output of 531 MW and winter output of 552 MW (as opposed to 606 MW in the case of the IGCC Power Station on the West Range Site). In similar fashion to the study conducted for the West Range IGCC Power Station, the East Range SIS involved an assessment of system performance based on steady state analysis, contingency analysis, constrained interface analysis, short circuit analysis and stability analysis. Based on the study results, no network upgrades are required for Mesaba One to interconnect as an Energy Resource. Additional deliverability studies will be performed to determine whether Mesaba One can be designated as a network resource.

1.8.1.6 Transmission System Impact Studies

The LGIP requests for Mesaba One are in the System Impact Study phase with reports due in the first quarter of 2006. The studies will outline any adverse impacts from interconnecting Mesaba One and Two at each proposed POI, and determine what network upgrades will be required, if any, to the existing HVTL network to enable delivery of the output from Mesaba One to the Xcel Energy (NSP) control area.

[3] FERC Order No. 2003-A, issued on 3/5/04, clarified that an interconnection customer may request either "energy" or "network" resource interconnection service. Energy resource service is basic, minimal service, providing access to existing transmission capacity on an as-available basis. In contrast, network resource interconnection service is far more flexible and comprehensive, allowing the generation facility to be identified by a network customer as a network resource. While both services allow the interconnection customer to place the power produced by a generating facility on to the transmission system at the point of interconnection, FERC said neither guarantees delivery service because they do not allow a customer to withdraw power at any particular delivery point. However, network interconnection service customers can ask for delivery service at the time of interconnection and tailor the service to their needs, just as they do now.

1.8.2 Significant Milestones to be Achieved

1.8.2.1 Large Generator Interconnect Agreement

There are several critical milestones within the overall schedule for Mesaba One that are related to the transmission development plan and are important to the success of the Project in meeting its overall project development timeline. Obtaining an approved Large Generator Interconnect Agreement ("LGIA") will form the basis for allocating the costs associated with standalone interconnection equipment and the network upgrades required by MISO.

1.8.2.2 Submittal of Pre-Construction Permit Applications and Environmental Supplement

The Applicant is required to submit environmental information to state and federal agencies to support preparation of an Environmental Impact Statement ("EIS") and, in the case of the MPUC, to support this Joint Application. In compliance with these requirements, the ES contains the required detailed information about Mesaba One and Two and their combined environmental impacts. Issues to be evaluated in the EIS for each Site will include alternatives for transmitting electricity generated by Mesaba One and Two; use of feedstocks and feedstock blends; access to the IGCC Power Station and Associated Facilities, and means of transport (road and rail) for feedstocks, byproducts, and wastes; water withdrawals; wastewater discharges; air emissions; interconnection to existing natural gas pipelines; socio-economic impacts; wetland impacts; noise; and aesthetics. In addition to this Joint Application, other preconstruction permit applications will include the Part 70/New Source Review Construction Authorization Application (to the MPCA), the National Pollutant Discharge Elimination System ("NPDES") Permit Application (also to MPCA), the Water Appropriation Permit Application (to the Minnesota Department of Natural Resources or "MDNR"), and a Wetlands Permit Application (to the U.S. Army Corps of Engineers).

1.8.2.3 Construction

Construction of the facility will be sequenced as shown in the project milestone schedule at Figure 1.8-1. Key schedule elements include issuance of pre-construction permits, construction and start-up of the facility, acceptance testing, environmental systems testing, and demonstrations for the Department of Energy pursuant to the CCPI award.

1.9 FUTURE EXPANSION

1.9.1 LEPGP Sites

Minnesota Rules 4400.1150, subpart 1.I and 4400.1150, subpart 2.L require applicants requesting an LEPGP Site Permit to provide an engineering analysis to show how each Site could accommodate expansion of future generating capacity. The Applicant is requesting a Site Permit, HVTL Route Permits, and a Pipeline Route Permit (the Applicant's request for a Pipeline Route Permit is only for the West Range Site, see Section 1.1) for Mesaba One and Mesaba Two at either of the two LEPGP Sites proposed herein, thus demonstrating the capability of each site to host at least two IGCC units. The detailed information and engineering analysis presented in this Application supports the conclusion that both the preferred and alternate sites can support the development of two 606 MW (net) generating units. There are currently no plans to expand the electrical generating capacity of either of the proposed Sites beyond the 1,212 MW (net) of generating capacity referenced in this Joint Application.

1.9.2 HVTL Routes

1.9.2.1 HVTL Routes Impact Fewest Resources

This Joint Application demonstrates that to the extent practicable, the proposed HVTL routes impact the fewest resources by proposing direct HVTL routes that traverse remote areas with relatively few landowners and by using existing HTVL rights-of-way ("ROW") along the direct route to the extent practicable.

1.9.2.2 Plans for Expansion of the HVTL System Are Established and Meet Reliability Criteria

1.9.2.2.1 West Range Site

The preferred and alternate HVTL routes and the structures that will be used for the generator outlet facilities have been designed to support the full output of Mesaba One and Mesaba Two. The structures utilized are 345kV double circuit single steel structures and are not designed for further expansion.

1.9.2.2.2 East Range Site

In the case of the East Range Site, two 345kV HVTLs will be initially placed in separate routes to satisfy the n-1 (single failure criterium) for Mesaba One. The two 345kV HVTLs will support the full output of Mesaba One and Mesaba Two.

1.9.3 Natural Gas Pipeline

Minnesota Rules 4415.0130 requires the applicant to describe how the natural gas pipeline may be expanded if future expansion is required. In general, the gas pipeline route and ROW that is the subject of this Application is intended to serve only Mesaba One and Mesaba Two. However, the pipeline installed will be oversized to allow sufficient capability for use by others should such actions be mutually agreeable to the parties and not violate permit conditions. As noted, it is possible that a local gas utility or municipal entity may own and construct this natural gas pipeline, which would jointly serve the IGCC Power Station and the proposed Minnesota Steel facility located nearby.

The trench excavated for the pipeline will be sufficiently sized to allow for placement of one pipe to supply Mesaba One and Mesaba Two with natural gas. Considerations regarding the pipeline trench and construction methods are provided in greater detail in Section 5.

1.10 OTHER PROJECT APPROVALS AND PERMITS

1.10.1 Innovative Energy Projects and Their Exemption from Certificate of Need Procedures

Minnesota Law provides special regulatory incentives to "innovative energy projects" and "clean energy technologies" under Minn. Stat. § 216B.1694 and Minn. Stat. § 216B.1693, respectively (the "Enabling Legislation"). The Project is an innovative energy project that has received an appropriate designation by the Commissioner of Iron Range Resources, as required by statute (see Minn. Stat. § 216B.1694, subd. 1(3)). As an innovative energy project, the Project is exempt from the requirements for a Certificate of Need (see Minn. Stat. § 216B.1694, subd. 2(a)(1)) that would otherwise require analysis and consideration.

1.10.2 Other Permits

1.10.2.1 Air Emission Facility Permit

The Applicant will request a Part 70/New Source Review Construction Authorization Permit (Minn. Stat. § 116.07 (2004); Minn. R. 7007.0050-1000) for an air emission facility which covers the IGCC Power Station sources illustrated in Figures 3.1-1 and 3.1-2 and air pollutant emissions identified in Section 3.4.1 of this Application. The Applicant expects to file the Air Permit Application for its West Range Site to the Minnesota Pollution Control Agency in June 2006.

1.10.2.2 Water Appropriation Permits

1.10.2.2.1 West Range Site

The Applicant will request a Water Appropriation Permit in accordance with Minn. Stat. §§ 103G.265-.315 (2004) and Minn. R. 6615.0010-0280 in April 2006 for purposes of withdrawing surface water to meet the IGCC Power Station needs at its West Range Site as discussed in Section 3.3.4 of this Application. The Applicant has obtained approval of the Minnesota Legislature to appropriate water in excess of the threshold set forth in Minn. Stat. § 103G.265, subd. 3. On May 22, 2006, Governor Pawlenty signed into law Senate File No. 2973, Article 5, Section 3, authorizing the use of water in excess of the 2 million gallons per day average (in a 30-day period) as specified in the aforementioned statute.

1.10.2.2.2 East Range Site

Because the East Range Site is within the Great Lakes basin, operation of Mesaba One and Mesaba Two at the East Range Site would also require that the MDNR comply with the provisions of Minn. Stat. § 103G.265, subd. 4.

1.10.2.3 National Pollutant Discharge Elimination System/State Disposal System (NPDES) Permit

The Applicant will request a National Pollutant Discharge Elimination System/State Disposal System (NPDES) Discharge Permit in accordance with Minn. Stat. § 115.03, subd. 5 (2004) and

Minn. R. 7001.1030-1100 and 7050 in June 2006 for the process wastewater discharges from its West Range Site (such discharges are identified and described in Section 3.4.2). In addition to discharges of cooling tower blowdown and other miscellaneous wastewater streams, the Applicant will also apply for a permit with the local publicly owned treatment works for disposal of domestic wastewaters (see Section 1.10.2.6 below).

1.10.2.4 MDNR License to Cross Public Lands and Waters

Utility crossings over, under, or through waterbodies listed as protected waters or wetlands on the MDNR Protected Waters Inventory ("PWI") will require Licenses for Utility Crossings of Public Lands and Waters under Minn. Stat. § 84.415 and Minn. R. ch. 6135. The MDNR Division of Land and Minerals is the administrative agency responsible for issuing 25 and 50-year licenses, which may be renewed at the end of the licensing period.

The HVTLs and natural gas pipelines proposed for the West Range Site will cross the Swan River and other waterbodies identified on the MDNR PWI. Such crossings will require a Utility Crossing License. On the East Range, HVTLs, domestic wastewater pipelines, and/or potable water lines which cross Colby Lake and other waterbodies identified on the MDNR PWI will require such a license. A complete listing of water crossings for the West Range Site is included in Section 7.6.6. The East Range Site listing of water crossings is provided in Section 8.6.5.

1.10.2.5 Wetlands Permit

A Wetlands Permit Application to the U.S. Army Corps of Engineers, Itasca County (for the preferred Site) and the Minnesota DNR is required under the Minnesota Wetlands Conservation Act (Minn. R. ch. 8420), Minn. R. 6115.0240, and 33 C.F.R. 325. These regulations cover, respectively, application requirements for i) wetlands replacement plan approval, ii) Public Waters Work Permits, and iii) Department of the Army Permits. Application requirements for Wetlands Permits are defined at 33 C.F.R. 325.1(d)(9) and Minn. R. 6115.0240, subp. 3. The following subsections identify instances where such work would be undertaken.

1.10.2.5.1 MDNR Work in Public Waters Permit (Minn. R. 6115.0160)

Projects constructed below the ordinary high water level ("OHWL") of lakes, wetlands, rivers and streams which alter the course, current, or cross-section of the water body, may require a MDNR Public Waters Work Permit. Instances where such permits may be required on the West Range Site are provided in Section 7.6.4.2.2. On the East Range Site such instances are identified in Section 8.6.4.1.2.

1.10.2.5.2 Wetland Conservation Act Wetland Replacement Plan Application

Wetlands replacement plans will be required for applicable West Range Site projects listed in Section 7.7. Plans required for East Range Site are listed in Section 8.7.

1.10.2.5.3 USACOE Section 10 Work in Navigable Waters and Section 404 Wetland Permit

Authorization to fill wetlands above the regulatory threshold of 400 square feet will be required for both the West Range and East Range Sites. A listing of the impacted wetlands for the West Range and East Range Sites is provided in Sections 7.7 and 8.7, respectively.

1.10.2.6 Sanitary Discharge Approval

The Company may discharge sanitary wastewater to an off-site POTW, an on-site sedimentation pond, or a septic system. Required approval(s) will be obtained from the receiving POTW if off-site discharge is chosen. In the event on-site sedimentation ponds or septic systems are utilized, the State (under the NPDES/State Disposal System Permit process as described in Section 1.10.2.3 above) and local governments must provide necessary approvals.

1.10.2.7 NPDES Stormwater Program

The construction of Mesaba One and Mesaba Two requires the Project to apply for coverage under the Minnesota Pollution Control Agency's ("MPCA") NPDES Stormwater Permit Program for Construction Activities. The Company, or its contractors, will prepare a Stormwater Pollution Prevention Plan ("SWPPP") and apply for coverage under a general permit prior to commencement of construction activities. The Company will require its contractors to comply with the SWPPP and the provisions of the construction stormwater permits. Stormwater permitting requirements and submittals are discussed in Section 7.6.4.3 for the West Range Site. As noted in Section 8.6.4.1.4 in the East Range Site environmental analysis, stormwater permitting requirements and submittals would mirror those for the West Range Site.

For either the West Range Site or the East Range Site and prior to operation of the LEPGP, HVTLs, and natural gas pipeline (West Range Site only), the Company will apply for coverage under the Minnesota General Permit for Industrial Activity (MN G611000), or will apply for a Certification of No Exposure.

1.10.2.8 FERC Interstate Natural Gas Pipeline Certification

If the East Range Site is selected under the PPSA procedure, natural gas supply transportation to the site would be provided by Northern Natural Gas Company ("NNG"). In addition, either of two existing natural gas pipeline routes containing natural gas pipeline owned by NNG could be selected to serve the East Range Site. In such instances, the required facilities would be constructed by NNG pursuant to the prior notice provisions of the regulations governing NNG's blanket certificate issued in FERC Docket No. CP82-401-000. This acknowledges that no mainline modifications would be required for the Mesaba One and Mesaba Two.

1.10.2.8.1 Natural Gas Pipeline Regulatory Procedures

Construction of the natural gas pipeline facilities is governed by the prior notice provisions of the Federal Energy Regulatory Commission (FERC) regulations (18 C.F.R. 157.208(b)). Pursuant to those regulations, the regulatory process will include the submission of a request to FERC which includes: (1) a description of the purpose for the proposed facilities; (2) a detailed description of the proposed facilities specifying length, diameter, wall thickness and maximum operation pressure for the pipeline; (3) a USGS 7.5 minute series (scale 1:24000) topographic map showing the location of the proposed facilities; (4) a map showing the relationship of the proposed facilities to NNG's existing facilities; (5) a comparative study showing daily design capacity, daily maximum capacity and operating pressures with and without the proposed facilities for that portion of NNG's existing system affected by the proposal; (6) the estimated cost and method of financing the proposed facilities; and (7) an explanation of how the public convenience and necessity requires the approval of the proposed facilities.

1.10.2.8.2 Natural Gas Pipeline Environmental Filings

The request to the FERC must also include a concise analysis discussing existing environmental conditions and any expected significant impacts that the proposed actions, including proposed mitigation measures, will cause to the quality of the human environment and sensitive environmental areas. The analysis must include a description of the public contacts made by NNG as well as any reports produced and results of consultations which took place to ensure compliance with the Endangered Species Act, National Historic Preservation Act and the Coastal Zone Management Act.

1.10.2.8.3 Notices

NNG will provide a copy of the FERC request to the appropriate state agency. In addition, pursuant to Section 157.203(d)(2) of the FERC's regulations, NNG will make a good faith effort to notify all affected landowners, as defined in Section 157.6(d)(2), within at least three business days following the date that a docket number is assigned to the application or at the time it initiates easement negotiations, whichever is earlier.

Within ten days after NNG's proposal has been submitted to the FERC, a notice of the proposal will be issued and posted to the FERC's Web site. The notice will invite comments from the public, agencies and any affected stakeholder during a specified time period. Forty-five days after the notice has been issued, the project will be approved to commence construction if no protests have been filed by any person or the FERC staff. If a protest is filed, the applicable parties will have thirty days from the deadline of the comment period within which to resolve the issues and withdraw the protest. If the protest has not been withdrawn within the appropriate time period, the request will be treated by the FERC as an application requesting FERC Section 7 authorization.

1.10.2.9 Other Approvals or Notifications

Other permits, approvals or notifications may be required under the following programs:

- Federal Aviation Administration Notice of Proposed Construction or Alteration (as necessary for exhaust stack and transmission towers)
- Exemption to allow burning of natural gas for power production (DOE, 10 C.F.R. § 503)
- Road Crossing Permits (Mn/DOT, Minn. R. ch. 8810)
- Miscellaneous State Building and Construction Permits and Inspections

A complete listing of potential permits and approvals is provided in Table 1.10-1.

Table 1.10-1 List of Permits Potentially Required to Construct and Operate Mesaba One and Two

Jurisdiction	Agency	Type of Approval	Authority	Description
Federal	Energy Regulatory Commission	Sales Tap Approval	18 C.F.R. 157.211	Approval to tap into or modify existing interstate natural gas pipeline
Federal	Federal Aviation Administration	Determination of No Hazard to Air Navigation	14 C.F.R. 77.19	Upon the Applicant's submission of notice of proposed construction of objects potentially affecting navigable airspace, the FAA must confirm such construction constitutes no hazard to air navigation.
Federal	Environmental Protection Agency	Acid Rain Permit	40 C.F.R. 72	Permit required for utility units exceeding threshold limits specified in regulation cited.
Federal	Energy Regulatory Commission	Exempt Wholesale Generator Status	15 U.S.C. 79z-5a(e)	Exemption of private generation from certain requirements for public utilities.
Federal	Department of Energy	Permanent exemption for New Facilities	10 C.F.R. 503	Exemption to allow burning of natural gas and fuel oil for power production
Federal	Army Corps of Engineers	Rivers and Harbor Act permit	33 C.F.R. 322	Permit for structures or work in or affecting navigable waters of the United States
Federal	*Army Corps of Engineers*	*Clean Water Act § 404 permit*	*33 C.F.R. 323*	*Permit governing the discharge of dredged or fill material to waters of the United States*
State of Minnesota	Board of Electricity	Electrical Inspection	Minn. R. ch. 3800	Conformance with electrical code
State of Minnesota	Department of Health	Public Water Supply Plan Review	Minn. R. ch. 4720	Required for drinking water systems serving greater than 25 persons
State of Minnesota	Department of Health	Plant Plumbing Plan Review	Minn. R. ch. 4715	Inspection of plumbing system
State of Minnesota	Department of Health	Environmental Laboratory Certification	Minn. R. 4740.2010 - 4740.2040	Environmental laboratory certification required before data can be submitted in support of permit programs, e.g., as prescribed under National Pollutant Discharge Elimination System ("NPDES") permit program

Table 1.10-1 List of Permits Potentially Required to Construct and Operate Mesaba One and Two

Jurisdiction	Agency	Type of Approval	Authority	Description
State of Minnesota	Department of Transportation	Access Permit	Minn. R. 8810.0050	Required whenever there is a request for change in access to or from Mn/DOT rights-of-way
State of Minnesota	Department of Transportation	Construction of Tunnels Under Highways Permit	Minn. R. 8810.3200 - 8810.3600	Utility construction and relocation on trunk highway rights-of-way
State of Minnesota	Department of Transportation	Drainage Permit	Minn. R. 8810.0050	Permit issued for repairs of utility or rebuilding structure (manholes, catch basins, etc) that are already in place.
State of Minnesota	Department of Transportation	Railroad Grade Crossing Operating License	Minn. R. 8830.2150 and 8830.9991	Operating license will be issued upon submittal and approval of railroad grade crossing signal circuit plans.
State of Minnesota	Department of Transportation	Utility Permit on Trunk Highway Right-of-way	Minn. R. 8810.3100 - 8810.3600	Permit required to install/move utilities on highway rights-of-way.
State of Minnesota	Department of Natural Resources	Easement Across State-Owned Land Managed by the Minnesota Department of Natural	Minn. Stat. § 84.63 Minn. Stat. § 84.631	The DNR may issue an easement to cross state-owned lands for the purpose of constructing and maintaining roads
State of Minnesota	Department of Natural Resources	License to Cross Public Lands and Waters	Minn. R. ch. 6135	For installation of utility services (as defined in statute) across DNR administered land and public waters
State of Minnesota	Department of Natural Resources	Open Burning Permit	Minn. Stat. § 88.16	Registering with local forestry office or fire warden is required in forested counties
State of Minnesota	Department of Natural Resources	Public Waters Work Permit (Protected Waters Permit)	Minn. R. 6115.0110 - 6115.0280	Work permit for activities that change or diminish the course, current or cross section of public waters within the state
State of Minnesota	Department of Natural Resources	Water Appropriation Permit - Long Term (Exceeding two years)	Minn. R. 6115.0600 - 6115.0810 ; 6115.0010	Permit required to appropriate or use waters of the state (ground or surface)

Table 1.10-1 List of Permits Potentially Required to Construct and Operate Mesaba One and Two

Jurisdiction	Agency	Type of Approval	Authority	Description
State of Minnesota	Department of Natural Resources	Water Appropriation Permit - Temporary (1-2 year maximum)	Minn. R. 6115.0600 - 6115.0810 ; 6115.0010	General permit notification form for certain temporary appropriations for construction dewatering, landscaping and hydrostatic testing
State of Minnesota	*Public Utilities Commission*	*Site Permit for Large Electric Generating Power Plant*	*Minn. R. ch. 4400*	*Preconstruction permit requiring preparation of Environmental Impact Statement and contested case hearing*
State of Minnesota	*Public Utilities Commission*	*Route Permit for High Voltage Transmission Lines*	*Minn. R. ch. 4400*	*Preconstruction permit requiring preparation of Environmental Impact Statement and contested case hearing*
State of Minnesota	*Public Utilities Commission*	*Route Permit For Natural Gas Pipeline*	*Minn. R. ch. 4415.0035*	*Preconstruction permit requiring preparation of Environmental Impact Statement and contested case hearing*
State of Minnesota	Pollution Control Agency	Underground Storage Tank (UST) Registration	Minn. Stat. § 116.46	Regulated UST systems must be registered
State of Minnesota	*Pollution Control Agency*	*NPDES/SDS Permit*	*Minn. R. 7001.0020*	*Permit required for discharging wastewater to waters of United States (NPDES)*
State of Minnesota	Pollution Control Agency	NPDES General Industrial Stormwater Permit	Minn. R. 7001.1035	Permit for stormwater discharges associated with industrial activity
State of Minnesota	Pollution Control Agency	NPDES General Construction Stormwater Permit	40 C.F.R. 122.26; Minn. R. 7001.1035	NPDES permit for stormwater discharge required for construction sites disturbing 1 acre or more of land
State of Minnesota	Pollution Control Agency	Hazardous Waste Generator License	Minn. R. 7045.0225	Any business that generates more than 10 gallons of feeable hazardous waste in a calendar year must be licensed and pay an annual fee
State of Minnesota	Pollution Control Agency	Aboveground Storage Tank (AST) Registration	Minn. R. ch. 7001 and 7151	Owners of Aboveground Storage Tanks larger than 110 gallons must notify the Agency

Table 1.10-1 List of Permits Potentially Required to Construct and Operate Mesaba One and Two

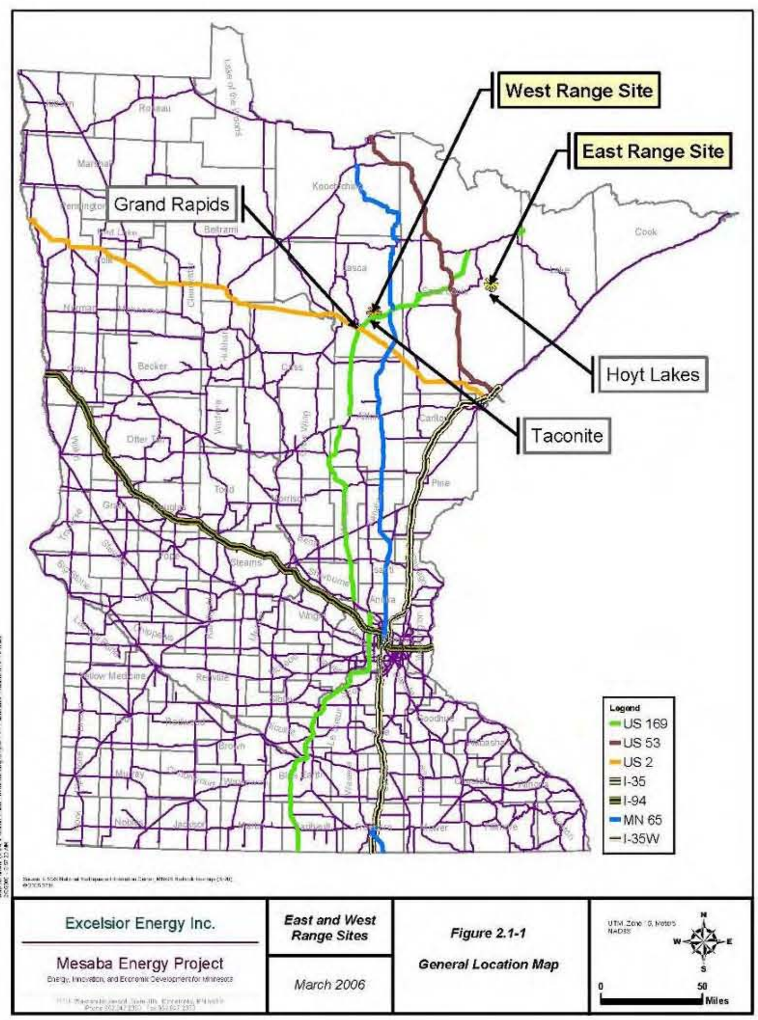
Jurisdiction	Agency	Type of Approval	Authority	Description
State of Minnesota	*Pollution Control Agency*	*Part 70 Permit*	*Minn. R. 7007.0200 and 7007.0250*	*Construction of a major new source meeting specifications in rules must receive an air emissions permit prior to commencement of construction*
State of Minnesota	Department of Public Safety	Fire Sprinkler Systems Plan Review	Minn. R. ch. 7512.1100	Permit for Fire Protection System
State of Minnesota	Department of Public Safety	Flammable Liquid Tanks Plan Review	Minn. Stat. § 299F.011	Aboveground Storage Tank Plan Review for Flammable and Combustible Liquids (Private Motor Vehicle Fuel Dispensing Station)
State of Minnesota	Department of Labor and Industry	Pressure vessels	Minn. R. ch. 5225	Permit required for operation of high pressure vessels
State of Minnesota	State Historical Preservation Office	Cultural Resources Review	36 C.F.R. 800	State review required under National Historic Preservation Act

2. OVERVIEW OF LEPGP SITES AND HVTL/ PIPELINE ROUTES

2.1 LEPGP SITES

In compliance with the requirements of Minn. Stat. §§ 116C.51-.69 (known as the Minnesota Power Plant Siting Act, hereafter, the "PPSA") and Minn. R. 4400.1150, subp.1.C, the Applicant is proposing herein a preferred and alternate site for location of Mesaba One and Mesaba Two. The West Range Site, the Applicant's preferred location, is mostly located within the City limits of Taconite in Itasca County, Minnesota. The Applicant's alternate East Range Site is located mostly within the City limits of Hoyt Lakes in St. Louis County, Minnesota. Figure 2.1-1 illustrates the general project location, including both sites relative to one another, and provides a broad geographical context within which to place them. A complete description of the West Range and East Range Sites is provided in Section 2.5.1 and Section 2.6.1, respectively. Tables 2.7-1 through 2.7-3 compare the two Sites to one another in terms of their overall environmental impacts and construction/operating costs.

Figure 2.1-1 Minnesota Map Showing Location of West and East Range Sites



2.1.1 West Range Site

Figure 2.1-2 shows the West Range Site and the location of the IGCC Power Station Footprint, Buffer Land and Associated Facilities. Figure 2.1-3 provides a more detailed illustration of the infrastructure immediately surrounding the Station Footprint and Buffer Land. A description of each of these components on the West Range Site is provided in Section 2.5 along with the specific HVTL and natural gas pipeline routes for which the Applicant is seeking permits. A complete description of the existing environmental setting of the West Range Site and the environmental impact of constructing the IGCC Power Station and its Associated Facilities is provided in Section 7.

2.1.2 East Range Site

Figure 2.1-4 shows the East Range Site and the location of the IGCC Power Station Footprint, Buffer Land and Associated Facilities. Figure 2.1-5 provides a more detailed illustration of the infrastructure immediately surrounding the Station Footprint and Buffer Land. A description of each of these components on the East Range Site is provided in Section 2.6 along with the specific HVTL routes for which the Applicant is seeking a permit. A complete description of the existing environmental setting of the East Range Site and the environmental impact of constructing the IGCC Power Station and its Associated Facilities is provided in Section 8.

Figure 2.1-2 West Range Site Showing IGCC Power Station Footprint, Buffer Land, Associated Facilities and Additional Lands

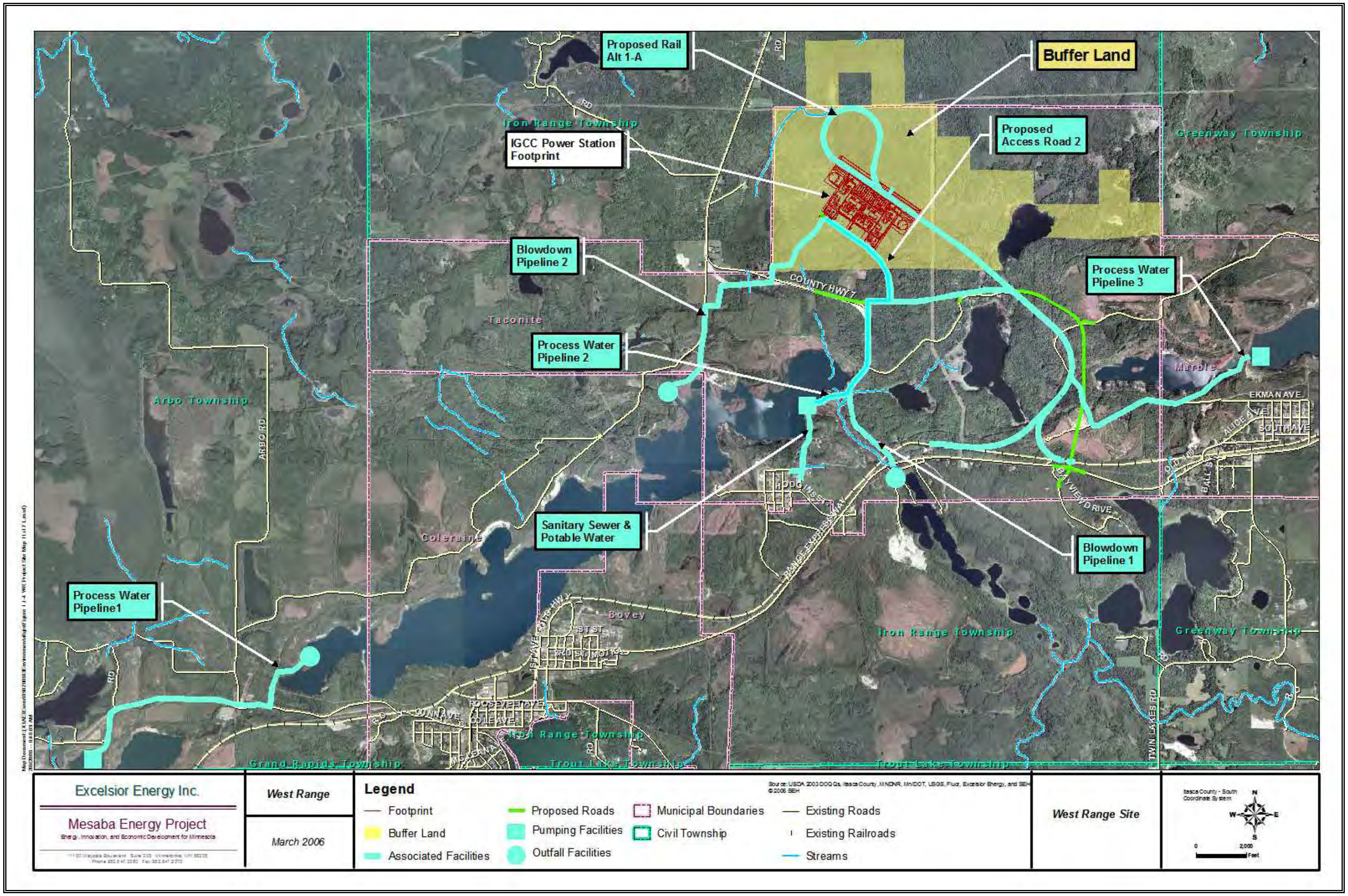


Figure 2.1-3 West Range Site Showing IGCC Power Station Footprint, Buffer Land and Details Behind Selected Associated Facilities

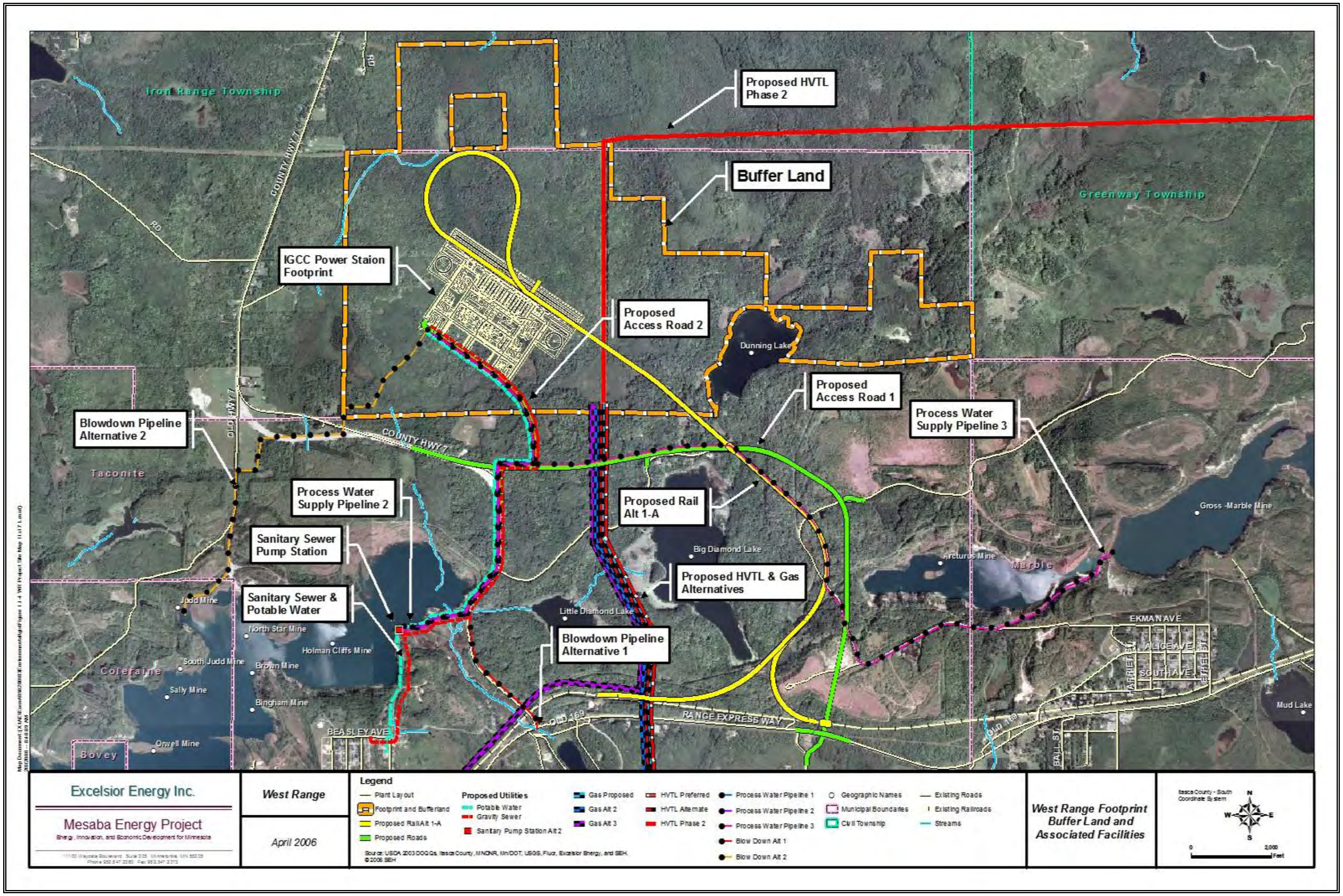


Figure 2.1-4 East Range Site Showing IGCC Power Station Footprint, Buffer Land, Associated Facilities, and Additional Lands

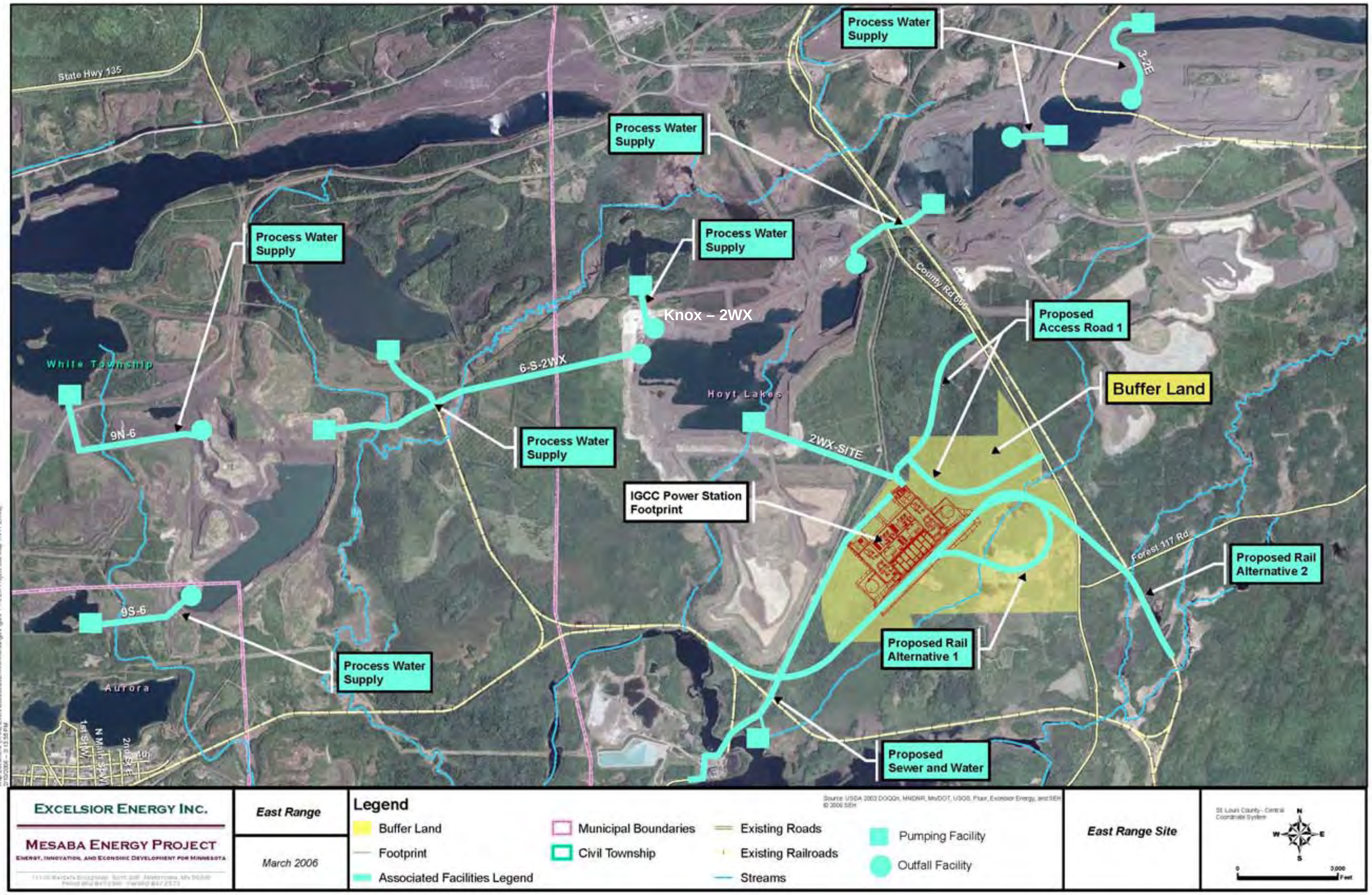
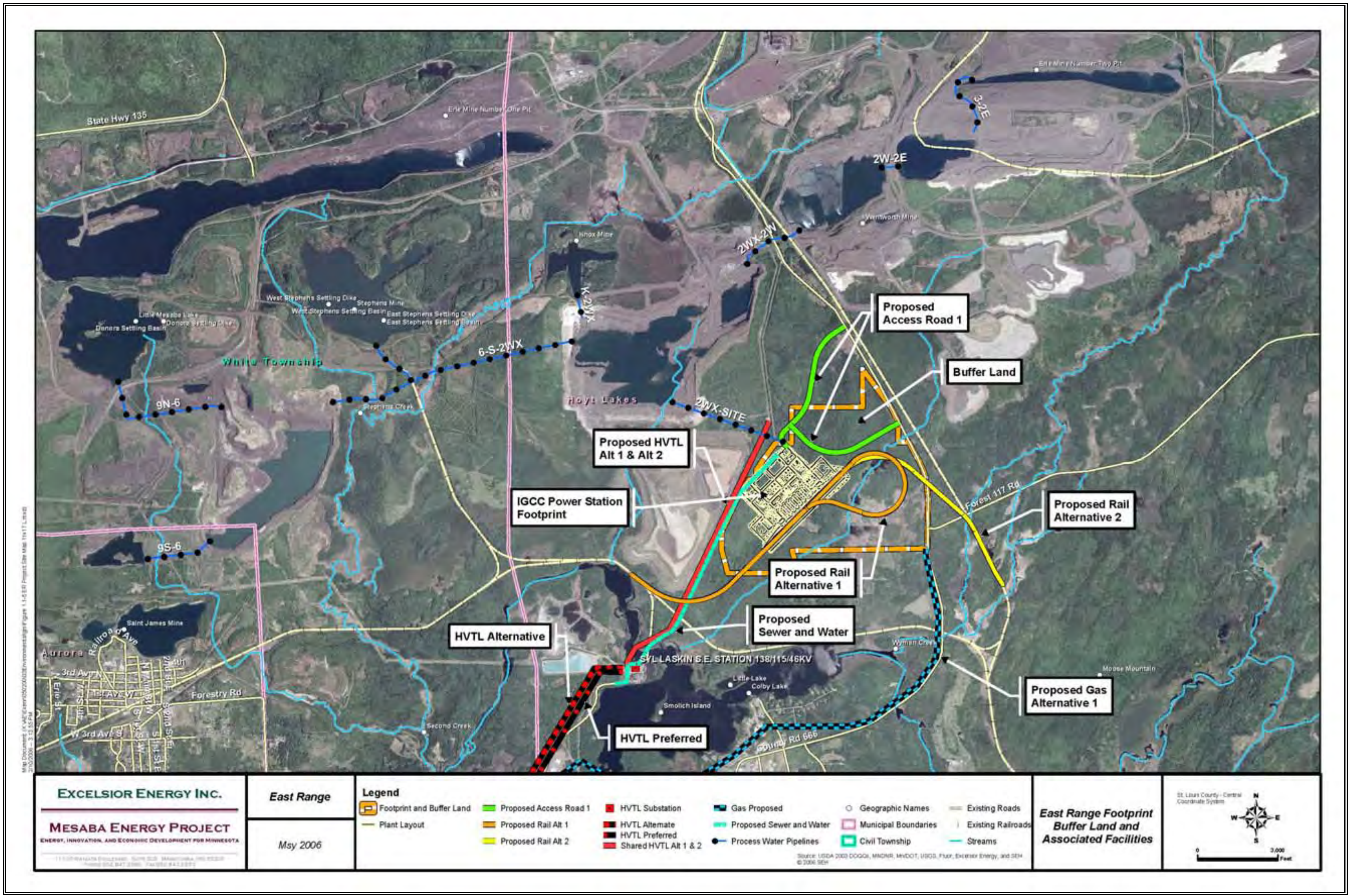


Figure 2.1-5 East Range Site Showing IGCC Power Station Footprint, Buffer Land and Details Behind Selected Associated Facilities



2.2 HVTL ROUTES

The PPSA requires the Applicant to identify at least two potential routes for its proposed HVTLs, identify which of the routes it prefers, and provide justification for its preference. The West Range and East Range Sites each have preferred and alternate HVTL routes (specifically described in Section 2.5.3 and Section 2.6.3 for the West and East Range Sites, respectively) which are referred to in this Joint Application by the names given to them in Tables 2.1-1 and 2.2-2. The proposed HVTL alignment for each of the routes named in these tables is shown in a milepost route map, the figure reference of which is provided in the tables.

The permitted HVTL "route" is defined in Minn. R. 4400.0200, subp. 16 as an area between two substation end points that "may have a variable width of up to 1.25 miles within which a right-of-way for a HVTL can be located." The Applicant hereby requests a narrower one-half mile wide route for each of the requested HVTLs. The requested one-half mile route would be one quarter-mile (1,320 feet) in width on each side of the proposed HVTL centerline alignments. The requested route width will be sufficient to minimize impacts and accommodate land owners' concerns during final route design. The Applicant will acquire a minimum 150-foot wide temporary right-of-way for construction of the HVTL and a minimum 100-foot wide permanent right-of-way.

2.2.1 Single Failure Criterion (n-1)

Most bulk power systems are designed according to the (n-1)-criterion, also called the single failure criterion, which requires that the power system withstand the loss of a single line, generator, transformer or bus bar without any severe disturbance of power supply. For example, a single transmission line interconnecting a plant with its POI will not meet the "single failure criteria" since loss of that one line due to a forced or scheduled maintenance outage would require plant operations to be curtailed and result in a complete loss of power to the grid.

For either the West Range Site or the East Range Site, two separate HVTL circuits are needed to reliably connect the IGCC Power Station to the substation POI. For Mesaba One alone, a minimum of two 230kV circuits (or two 345kV circuits) are required in order to provide the necessary transmission redundancy should one circuit fail. For Mesaba One and Two together, two 345kV circuits, or the combination of one double circuit 230kV line and one single circuit 230kV line, are needed to provide the necessary n-1 redundancy.

2.2.2 West Range

The Applicant is applying for one HVTL Route Permit for a combination of circuits and routes that will provide the necessary reliable interconnection of Mesaba One and Mesaba Two to the POI. Under the West Range Site preferred plan ("Plan A"), as described below, two 345kV HVTL circuits would be installed on the same structures on a single route (345kV double circuit). However, should the MISO deem this configuration incompatible with regional plans, the Applicant is also applying in the alternative for a HVTL Route Permit under a contingent plan ("Plan B"). Under Plan B, described below, one double circuit 230kV HVTL and one single circuit 230kV HVTL would be installed on separate transmission structures located on separate routes.

2.2.2.1 Transmission Plan A

Plan A involves interconnecting to the Blackberry Substation (the West Range POI) with two 345kV HVTLs mounted on single steel pole structures. This double circuit 345kV plan will accommodate the full 1,212 MW output of Mesaba One and Mesaba Two and meet the (n-1) single failure criterion (see Section 2.2.1 above). Each 345kV HVTL has sufficient transfer capacity to carry Mesaba One and Mesaba Two electrical output, with both lines would be installed with construction of Mesaba One. For Mesaba One, each of the two 345kV GO HVTLs will be operated at 230kV and either line will be capable of supporting the entire output of the Station in the event of a contingency forcing one line out of service. Before Mesaba Two comes on line, each of the 345kV HVTLs operating at 230kV would be upgraded to their rated 345kV capacity and thereafter be capable of conveying the entire output capacity of Mesaba One and Mesaba Two to the POI. The necessary upgrades would only apply to electrical substation equipment and involve no modification to the HVTL structures or conductors initially installed to serve Mesaba One.

The routes considered under Plan A are discussed in Sections 2.2.2.1.1 and 2.2.2.1.2 and shown on Figure 2.2-1. A detailed description of the Plan A routes and a series of maps showing each alignment superimposed on aerial photographs is contained in Section 2.5.3.

2.2.2.1.1 Plan A Preferred HVTL Route (WRA-1)

The preferred 345kV double circuit HVTL route ("Route WRA-1") would use the following two segments of existing ROW: i) about 1.6 miles of existing ROW between the southern boundary of the West Range Buffer Land and the retired Greenway Substation, located just south of US Highway 169 and ii) about one mile of existing ROW shared with MP's 230kV 83 Line and 115kV 20 Line HVTLs just before their interconnection with the Blackberry Substation (hereafter, all existing HVTLs will be identified by their number followed by the letter "L" for "Line," e.g., 83L).

Route WRA-1 would require acquisition of about six miles of new ROW between the Greenway Substation and point of intersection with MP's HVTLs. As the length of new ROW exceeds that exempted under Minn. R. 4400.1150, subp.2.C (see Section 2.5.3.1.2), an alternate route must be proposed.

2.2.2.1.2 Plan A Alternate HVTL Route (WRA-1A)

The alternate HVTL route ("Route WRA-1A") follows the same alignment as the preferred route for the first 3.2 miles from the southern boundary of the Buffer Land. Route WRA-1A also shares about 0.9 miles of ROW in common with the 115kV 62L HVTL route just prior to its interconnection with the Blackberry Substation.

The major difference between Route WRA-1A and the preferred route is that Route WRA-1A runs east of and parallel to Twin Lakes Road (the preferred route runs west of and parallel to Twin Lakes Road) as shown in Figure 2.2-1. Route WRA-1A is located about 0.44 miles east of Twin Lakes Road to avoid residences located on the road. Route WRA-1A will require about the same length of new ROW (approximately 5.8 miles), but overall is about one-half mile shorter in length than Route WRA-1. In general, Route WRA-1 is preferred because it traverses area that is less developed (that is more remote, has fewer water crossings, crosses fewer open fields, avoids gravel mining operations, and would generally be less visible). Both routes are similar in that they traverse areas that have a similar residential density profile and are the shortest and most direct routes to the POI.

2.2.2.2 Transmission Contingent "Plan B"

In the event MISO determines that the 345kV transmission infrastructure is incompatible with regional transmission planning initiatives or the Applicant determines that the timing for building 345kV transmission in the region is outside the reasonable timeframes it contemplated, then the Applicant would construct and install the 230kV transmission scheme as described in Plan B below.

Plan B would involve first interconnecting the West Range POI with two 230kV HVTLs on a single steel pole structure. This double circuit 230kV plan will accommodate the full 606 MW output of Mesaba One and meet the (n-1) single failure criterion.

Although the double circuit 230kV GO HVTLs installed to accommodate Mesaba One can accommodate the entire 1,212 MW output of Mesaba One and Mesaba Two, they do not meet the single failure criterion (that is, the 1,212 MW IGCC Power Station would be required to reduce its generating capacity should one of the 230kV HVTLs be taken or be forced out of service). Plan B therefore includes an additional HVTL with the construction of Mesaba Two.

The rating of the additional GO HVTL required to reliably convey the combined full-load output of Mesaba One and Mesaba Two will depend upon the route selected between the IGCC Power Station and its POI at the Blackberry Substation.

The routes considered under Plan B are discussed in Sections 2.2.2.2.1 and 2.2.2.2.2 and shown on Figures 2.2-2, 2.2-4 and 2.2-5. A detailed description of the Plan B route and a series of maps showing each alignment superimposed on aerial photographs is contained in Section 2.5.3.2

2.2.2.2.1 Plan B Phase I

2.2.2.2.1A Preferred Route (WRB-1)

The preferred route for the 230kV double circuit GO HVTLs for Plan B Phase I ("Route WRB-1") is the same as Plan A's Route WRA-1 (see Section 2.2.2.1.1), including the need to acquire about six miles of new ROW.

2.2.2.2.1B Alternate Route (WRB-1A)

The alternate route for the 230kV double circuit GO HVTLs for Plan B Phase I ("Route WRB-1A") is the same as Route WRA-1A (see Section 2.2.2.1.2 above).

2.2.2.2.2 Plan B Phase II

2.2.2.2.2A Preferred Route (WRB-2)

The Applicant's preferred HVTL route for Plan B Phase II ("Route WRB-2") is to use the route not selected for the 230kV double circuit HVTL for Plan B Phase I. That is, if the Applicant's preference of Route WRB-1 is approved, the Applicant proposes Route WRB-1A to be considered the preferred route for the single circuit 230 kV Phase II development.

Because the total line length of WRB-2 is only one-half mile shorter in length than the length for WRB-1, the single circuit HVTL required for Plan B (to reliably accommodate the combined full-load output of Mesaba One and Mesaba Two) can be designed at 230kV.

Conversely, if the Applicant's preference of Route WRB-1 is not approved as the preferred route under Plan B Phase I, the Applicant will propose Route WRB-1 as the preferred route for Plan B Phase II.

2.2.2.2.2B Alternate Route (WRB-2A)

Because the length of new ROW associated with either of the routes proposed as the preferred route under Plan B Phase II is greater than five miles, an alternative route must be proposed.

The alternate route proposed for Plan B Phase II ("Route WRB-2A") combines segments from two existing HVTL corridors, one of which traverses the northern section of the West Range Buffer Land. The length of the HVTL required to reach the POI via Route WRB-2A is about 18 miles. The Applicant proposes to use HVTLs rated at 345kV on this route to avoid elaborate switching requirements that would be required if 230kV were utilized on this route.

Both of the existing corridors are presently occupied by 115kV HVTLs structures owned by MP. The Applicant is proposing to use delta configuration 345kV structures with an underbuild feature that will the carry the existing 115kV HVTLs below the arms holding the 345kV conductors.

2.2.2.3 Plan A and Plan B Summary Table

A summary of the Applicant's transmission plans for the West Range Site is presented in Table 2.2-1 below.

Table 2.2-1
Applicant's HVTL Plans for West Range Site (See Note)

	Phase I Development						Phase II Development					
	Preferred Route			Alternate Route			Preferred Route			Alternate Route		
	Capacity & Type	Route Name	Figures Showing Route	Capacity & Type	Route Name	Figures Showing Route	Capacity & Type	Route Name	Figures Showing Route	Capacity & Type	Route Name	Figures Showing Route
Plan A	345kV D/C	WRA-1	2.2-1	345kV D/C	WRA-1A	2.2-1	Additional Phase II Developments Not Needed					
Plan B	230kV D/C	WRB-1	2.2-2	230kV D/C	WRB-1A	2.2-2	230kV S/C	WRB-2	2.2-3 or 2.2-4	345 kV S/C	WRB-2A	2.2-3 or 2.2-4

D/C = Double circuit; S/C = Single circuit
Note: The first two letters of the route name identify the Site to which the route applies; the second letter refers to the plan; the number that follows the first three letters refers to the phase of development, and the letter "A" following the phase descriptor identifies whether the route is an alternate (the absence of the letter "A" implies the route is preferred).

Figure 2.2-1 West Range Plan A Preferred (WRA-1) and Alternate (WRA-1A) 345kV HVTL Routes

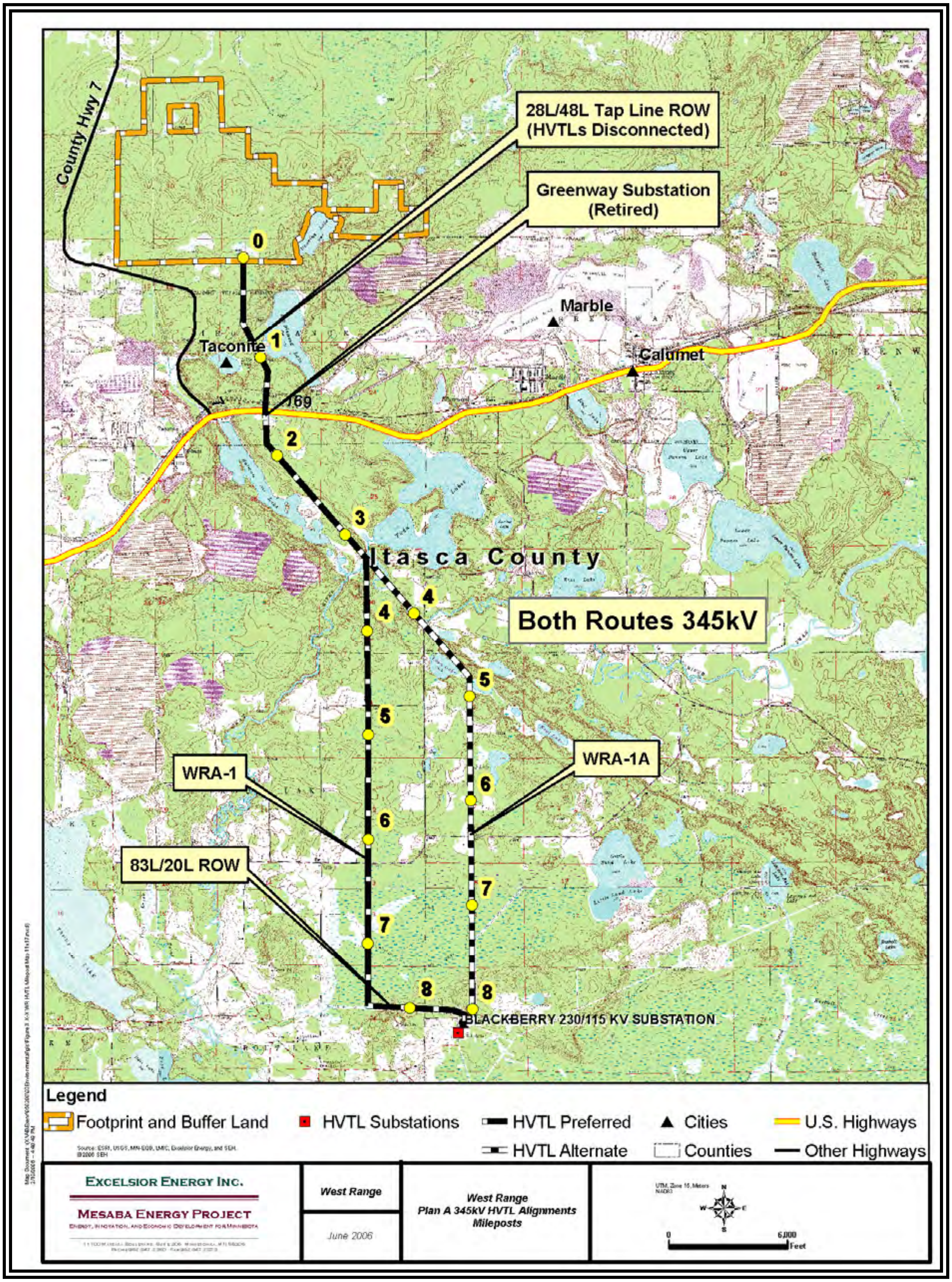


Figure 2.2-2 West Range Plan B Phase I Preferred (WRB-1) and Alternate (WRB-1A) Double Circuit 230kV HVTL Routes

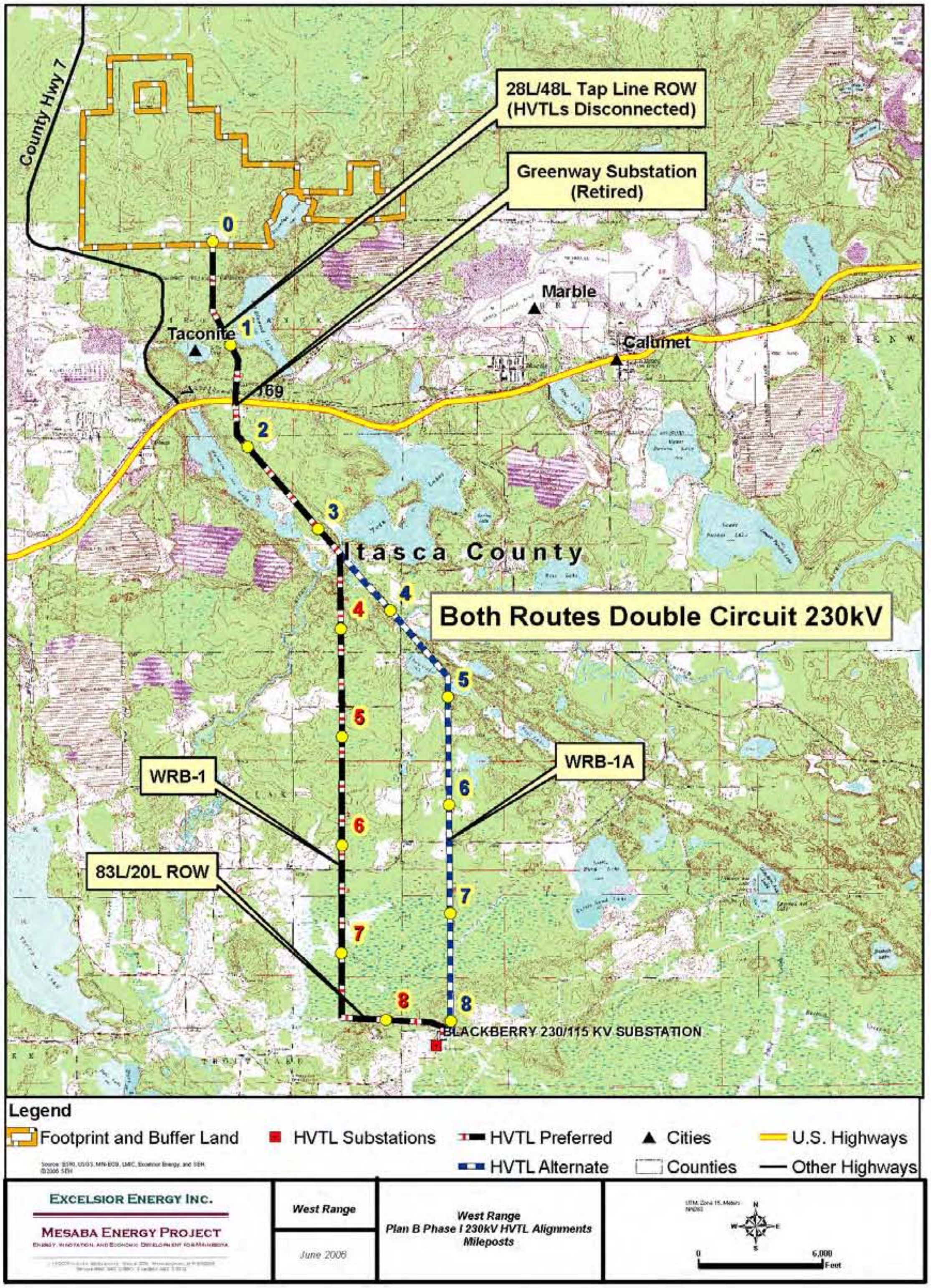


Figure 2.2-3 West Range Plan B Phase II Preferred (WRB-2) and Alternate (WRB-2A) HVTL Routes

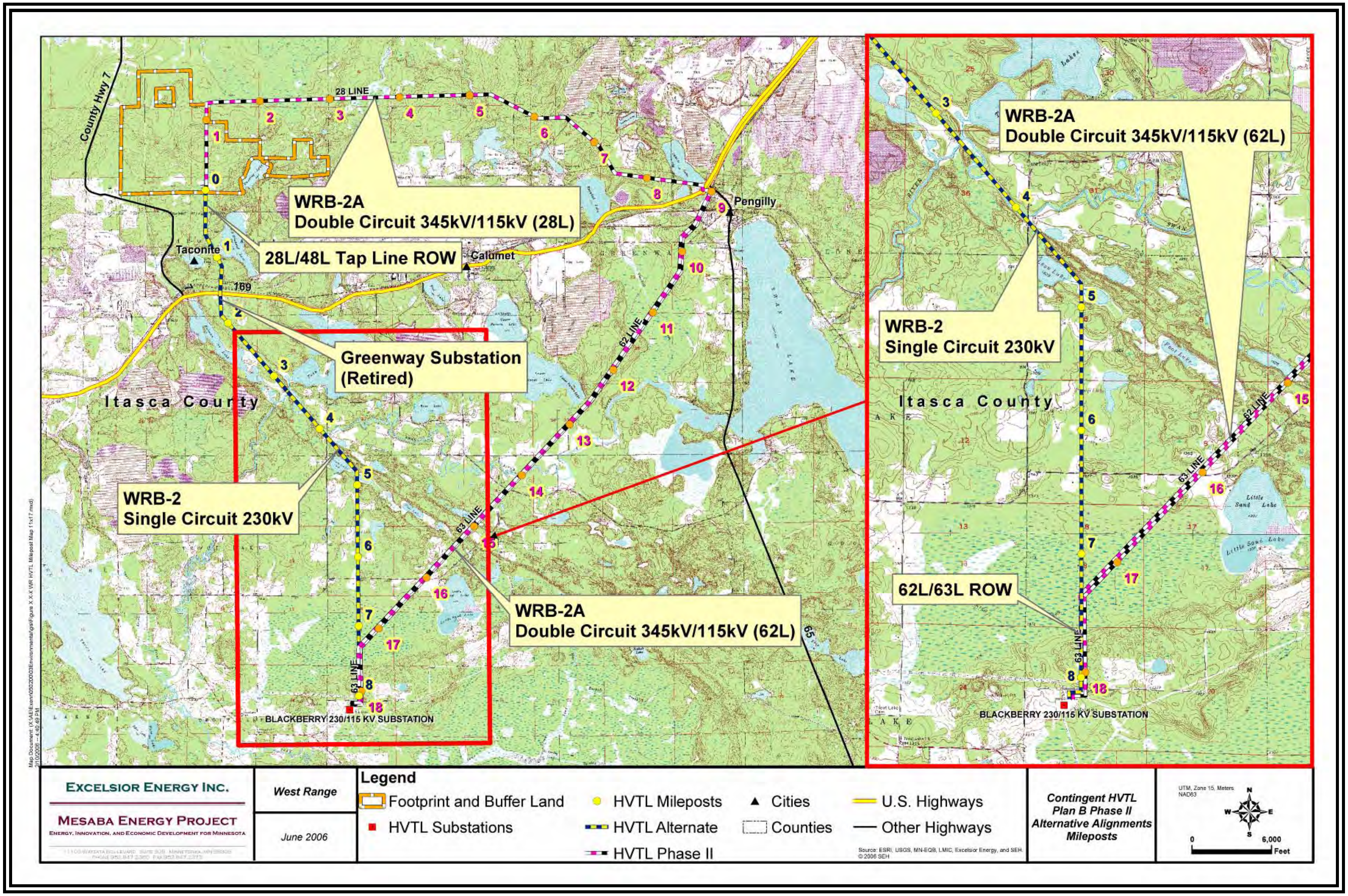
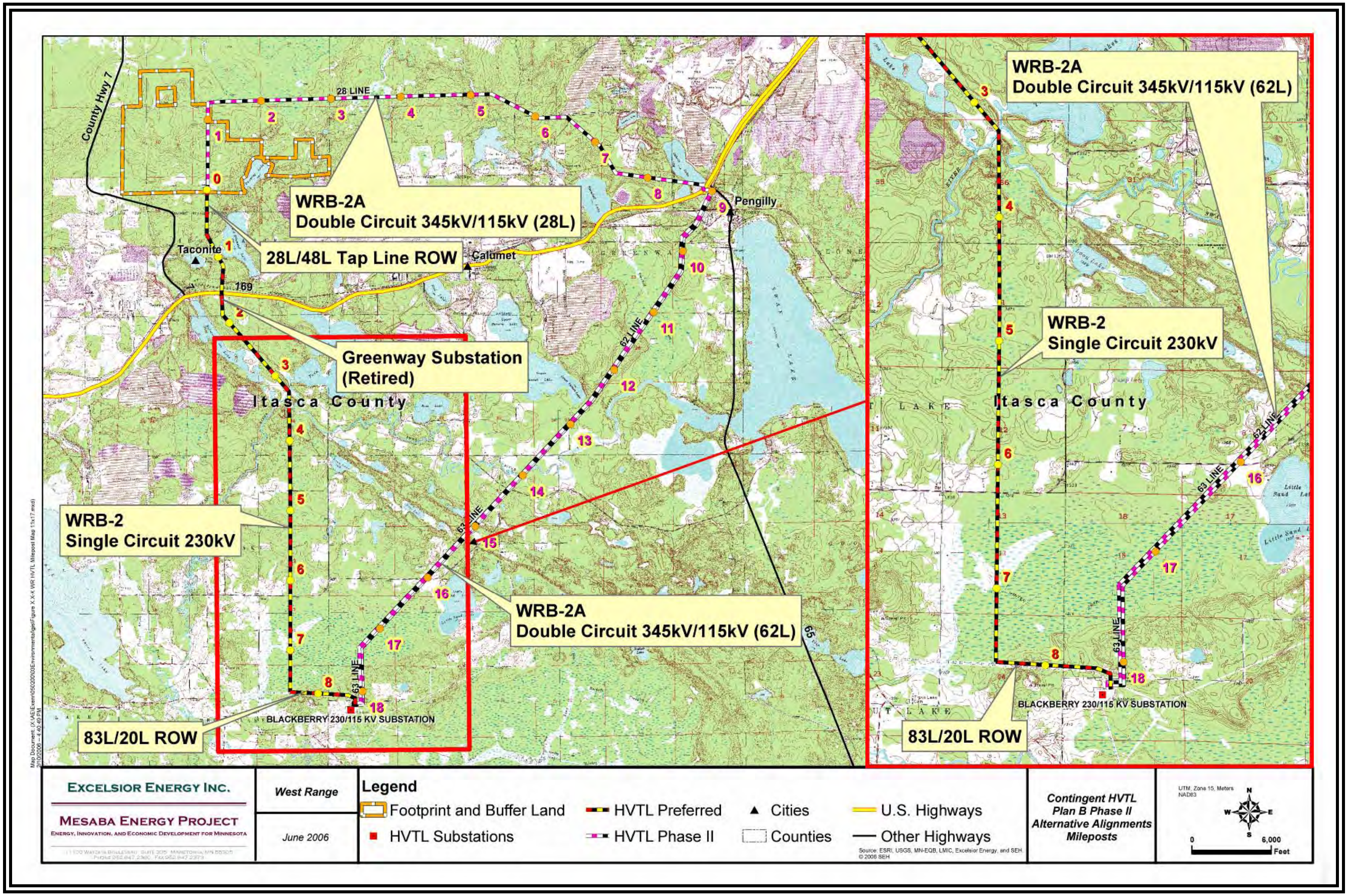


Figure 2.2-4 West Range Plan B Phase II Preferred (WRB-2)* and Alternate (WRB-2A) HVTL Routes



*The Preferred PlanB Phase II Route shown on this figure would be available only if it were not designated the Plan B Phase I Preferred Route.

2.2.3 East Range Site

The Applicant's preferred transmission plan for the East Range IGCC Power Station consists of two new 345kV HVTLs that will link the Station to the Forbes Substation POI. As noted in Section 2.2.1, even though one 345 kV HVTL is sufficient to accommodate the combined full load output of Mesaba One and Mesaba Two, both new lines must be constructed concurrently with installation of Mesaba One to address the single failure criterion requirement. Each line would follow existing corridors now occupied by 115 kV HVTLs owned by MP and that interconnect the Syl Laskin Generating Station ("Laskin") with the Forbes Substation.

The existing 115kV HVTLs connecting Laskin with the Forbes Substation are fully loaded year around and complicate the construction process. In order to avoid the conditions associated with "hot" construction methods (that is, working with HVTLs that are energized during the handling process), the Applicant is proposing to acquire an additional 30 feet of ROW along one of the routes between Laskin and Forbes in order to greatly minimize these concerns.

2.2.3.1 Constructability

In order to construct the initial double circuit 345kV/115kV vertical steel pole line on either of the existing 38L or 39L/37L ROW, an additional 30 feet of ROW is required to be added to the edge of the existing ROW. This proposed additional width will allow proper construction clearances and electrical clearance to the existing 115kV "H" frame structures and conductors under initial operation. As the vertical steel pole structures will be constructed adjacent to the existing "H" frame centerline approximately 31.5 feet off center, such construction requires the additional right-of-way.

The best option for widening 39L appears to be acquiring ROW on the south side of the existing ROW from the Syl Laskin Substation to Hwy 97, then moving to the north side from Hwy 97 to, and across, the Thunderbird Mine. The 39L has single-family residential conflicts in three potential locations and potentially one industrial site conflict. These narrow sections of ROW will necessitate either hot line construction or construction in short, scheduled outage windows on the existing line in affected ROWs.

The 37L is expandable on either side of the ROW since the only conflicts involve existing transmission lines, which may require outage windows for construction.

The proposed rerouting of 38L is anticipated to be on the north side of the existing structures. This route conflicts with three to four short sections of existing 38L where single family residences are located on the north side of the existing 115kV RW. The ROW in these locations is too narrow for a 30-foot expansion. Therefore, it is proposed to construct these sections during short, scheduled line outages, or under hot line construction, on the existing 115kV "H" frame centerline.

The construction staging and sequence scenario will be the same regardless of the circuit(s) chosen. The vertical double circuit construction will only be required on one of the chosen routes. The structure foundations will be installed first approximately 31.5 feet off centerline. While the foundation installation is under way in the winter months, ROW clearing would also be completed. Included in the ROW clearing would be the removal of dangerous trees overhanging the expanded ROW. The erection of the steel pole structures will be scheduled in accordance with the completion of foundations with the 345kV cross-arms facing away from the existing 115kV MP circuit. The bundled 345kV-1272 kcmil ACSR "Pheasant" conductor will be installed while the existing 115kV "H" frame lines remain in service. Once the 345kV circuit is installed, the electric load from the existing 115kV HVTL will be transferred to the new 345kV HVTL and it will be temporarily operated at 115kV to replace the existing MP line in the same corridor. The existing "H" frame structures will then be removed from the ROW. The open side of the 345kV vertical structure would then be built with 115kV insulators, hardware and 954-kcmil ACSR "Rail" conductor, while the 345kV side of the HVTL remains energized at 115kV.

The new double circuit transmission line will temporarily be operated as 38L on one side and 39L on the other side. The new lines will be connected to the breakers for 38L and 39L by short temporary transmission lines. While 38L and 39L follow different routes, both lines begin and terminate at the same substations. The relaying and protection schemes would be temporally reset to provide line protection; and would provide sufficient failure contingencies to allow the remaining "H" frame line to be removed. A new 345kV delta line with 115kV under-build would be constructed along the existing centerline of the 115kV transmission line not used in the previous scenario. Once construction is complete, the 345kV/115kV HVTL operating temporarily as a double circuit 115kV would be converted to its intended 345kV voltage. MP would thereafter have two 115kV lines operating on separate routes, on the same structures, with the IGCC Power Station's 345kV HVTLs.

The 38L and 39L both have active substations on the lines which must remain in service during the line construction. The Peary Substation on 38L can be served from a short radial feed from 16L.

The Lakeland Substation on 39L requires a longer radial feed from the new line either to 37L or from the Syl Laskin Substation. The Lakeland Substation limits the rebuild of 39L to two sections divided at approximately the half way point of 39L. Since the Lakeland Substation will represent a single contingency during the construction, a switch could be installed at the intersection of 38L and 39L to increase the reliability at Lakeland Substation.

The construction sequence is summarized in the following steps:

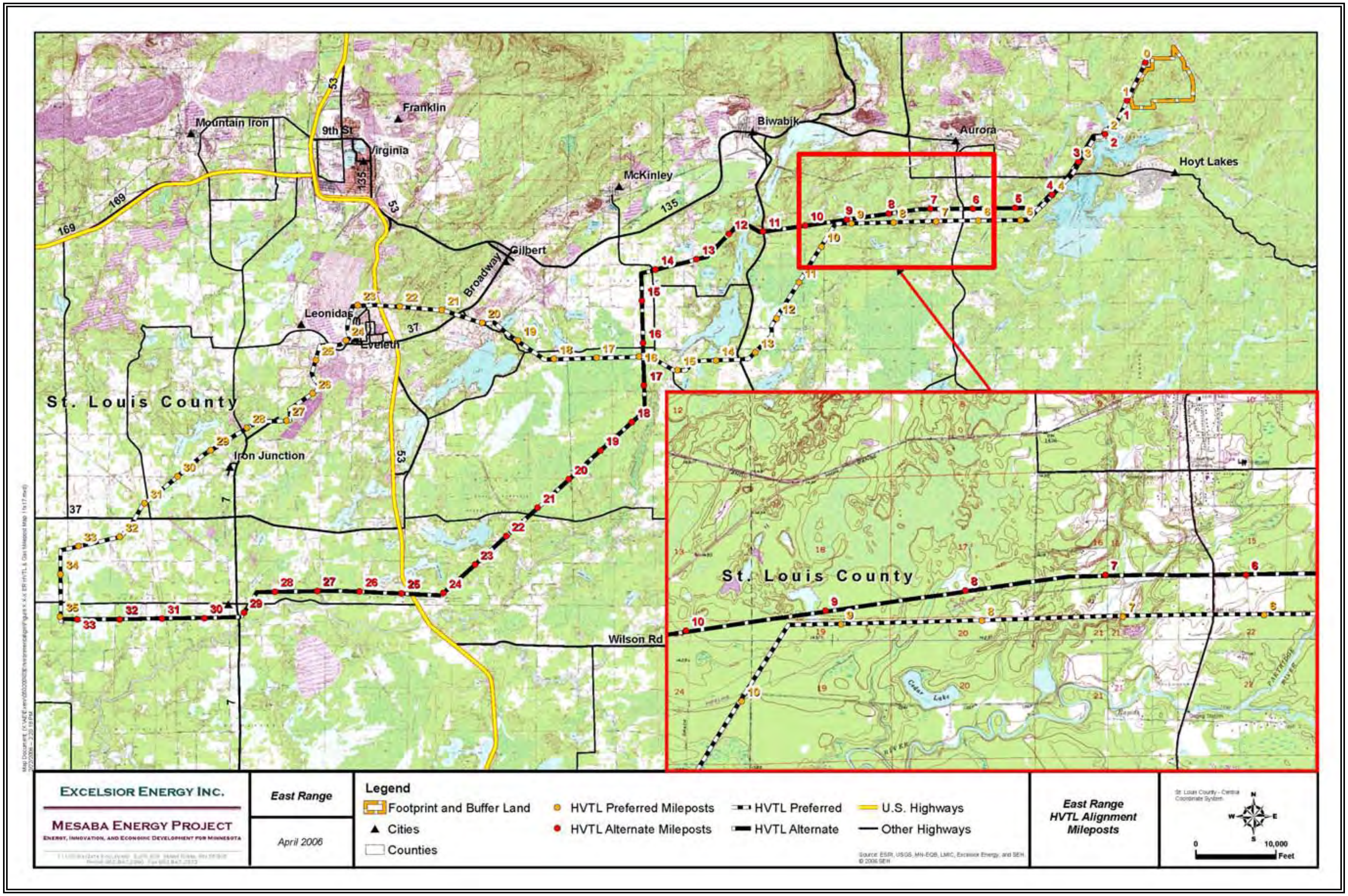
- Constructing new 345kV/115kV double circuit structures (shown in Figure 4.3-23) along the existing 115kV structures (using the new section of ROW to allow such construction to occur)
- Stringing the 345kV conductor on the new tower
- Operating the new 345 kV conductor at 115kV
- De-energizing the existing 115kV HVTL
- Moving the existing 115kV HVTL to the new 345kV/115kV double circuit structure
- Operating both lines at 115 kV until construction of the new 345kV/115kV double circuit structure (see Figures 4.3-25 and 4.3-17) in the other ROW is complete
- Re-energizing the 345kV conductor to its rated capacity for use by the Applicant

Operating both lines at 115kV (the sixth bullet in the above list) will allow the 115kV HTVL in the remaining corridor to be removed and the new HVTL double circuit 345kV/115kV structures to be constructed therein without the need to acquire additional ROW.

The two existing corridors the Applicant proposes to use as routes for its two 345kV GO HVTLs are the 39L/37L Route and the 38L Route. These routes are generally described in Sections 2.2.3.1 and 2.2.3.2 below and shown in Figure 2.2-5. A more detailed description of the routes and a series of maps showing each segment of each alignment superimposed on aerial photographs are contained in Section 2.6.3.

The Applicant has reviewed aerial photographs and flown the proposed HVTL routes in September 2005 to help determine which corridor would be the best from which to take the additional 30 feet of ROW identified above. These efforts resulted in the Applicant selecting the 39L/37L Route to acquire the additional ROW. However, to ensure that both corridors have received adequate consideration, a comparison between the two options is presented in Section 8.

Figure 2.2-5 East Range HVTL Route Milestone Map Showing the Preferred and Alternate Route



In Sections 2.2.3.1 and 2.2.3.2 below, the route configuration labeled as “preferred” thus involves i) acquiring 30 feet of new ROW from the existing 39L/37L Route and ii) working within the existing boundaries of the ROW associated with the 38L. The “alternate” route configuration involves i) acquiring 30 feet of new ROW from the existing 38L Route and ii) working within the existing boundaries of the ROW associated with the 39L/37L Route.

2.2.3.2 Preferred Configuration of Routes

The preferred configuration for the two 345kV/115kV double circuit GO HVTLs will require acquisition of two new ROW segments. One new segment will be about 2 miles in length and travel alongside an existing MP HVTL corridor and connect the IGCC Power Station to the initiation point of the 39L and 38L Routes. The short segment of new ROW added between the IGCC Power Station and Laskin will be used as a part of both the 39L/37L and 38L routes.

A second section of new ROW about 2 miles in length will be required to link the 39L and 37L corridors. This new segment of ROW crosses mostly areas that are disturbed from past mining activities so the environmental impact will be minimal.

The ROW associated with the 38L Route will not require modification.

The length of the 39L/37L and 38L routes is about 35 miles and 33.3 miles, respectively.

2.2.3.3 Alternate Configuration of Routes

The alternate configuration for the two 345kV/115kV double circuit GO HVTLs will require acquisition of the same two new ROW segments identified in Section 2.2.3.1. The only difference is that the 30 feet of ROW will be taken from the 38L instead of the 39/37L.

The length of the two routes remains unchanged from those presented in Section 2.2.3.1.

2.2.3.4 East Range Summary 345kV Route Table

Table 1.5-2 identifies the preferred and alternative route configurations for the East Range IGCC Power Station

Table 2.2-2
Applicant’s HVTL Plans for East Range Site (See Note)

	Phase I Development				**Phase II Development**			
	Route Name: 39L/37L		**Route Name: 38L**		**Route Name: 39L/37L**		**Route Name: 38L**	
	Capacity & Type	**30 ft New ROW**	**Capacity & Type**	**30 ft New ROW**	**Capacity & Type**	**30 ft New ROW**	**Capacity & Type**	**30 ft New ROW**
P See Figure 2.2-5	345kV/115kV Double Circuit (Figure 4.3-23)	Yes	345kV/115kV Double Circuit (Figure 4.3-17)	No	Additional Phase II Developments Not Needed		Additional Phase II Developments Not Needed	
A See Figure 2.2-5	345kV/115kV Double Circuit (Figure 4.3-17)	No	345kV/115kV Double Circuit (Figure 4.3-23)	Yes				

P= Preferred configuration; A= Alternate configuration

2.2.3.5 Comparison of GO Facilities Development for the West and East Range Sites

Table 2.2-3 is included to enable a comparison of key measures associated with the GO facilities development at each site.

Table 2.2-3
Comparison of GO Facilities for West and East Range Sites

	East Range Site		West Range Site			
			Plan A		Plan B	
PHASE I	**Preferred Route**	**Alternative**	**Preferred Route**	**Alternate**	**Preferred Route**	**Alternate**
Total HVTL Circuit (miles)	68.3	68.3	17.4	16.6	17.4	17.4
New ROW (acres)	4	4	6.2	5.8	6.2	5.8
Widened ROW (acres)	31.5	29	0	0	0	0
Permanent Land Use (acres)	166	165	134	121	134	121
Line Loss (MW)	11	11	1.4	1.4	2.2	2.2
PHASE I + PHASE II						
Total Circuit (miles)	68.3	68.3	17.4	16.6	25.7	35.5
New ROW (acres)	4	4	6.2	5.8	12	6.2
Widened ROW (acres)	31.5	29	0	0	0	0
Permanent Land Use (acres)	166	165	134	121	194	134
Line Loss (MW)	12	12	3.5	3.5	6.5	5.8

The new land use impact for the West Range GO facilities is 134 acres is less than that required for the East Range GO facilities. The 17.4 ROW miles is also about one-fourth of that for the East Range Site. These shorter lengths reduce potential visual and environmental impacts. Lower line losses of one-fourth to one-half effectively increases the Project's overall thermal efficiency, and reduces emission rates.

A comparison of GO HVTL costs between the West Range and East Range Sites is presented in Section 2.8.

Transmission constructability is another component aspect that must be considered when comparing site GO facility developments. Since all plans were developed to minimize the need for new ROW by utilizing existing transmission corridors to the maximum extent possible, issues associated with obtaining extended outages of the existing transmission lines to either upgrade or replace with new double circuit structures is of importance. In the case of the West Range GO facilities development, there are only minor constructability issues in Phase I (the only one identified is associated with the existing HVTL corridor for the last mile entering into the Blackberry Substation). Depending on MISO study results, Phase II development involves replacing portions of two existing 115kV lines with new double circuit 345/115kV structures for about 18 miles (Plan B Phase II Alternate HVTL Route Route, WRB-2A). However, there appears to be sufficient redundancy in the local area 115kV system that would allow for extended outages, especially if coordinated with outages of the Clay Boswell Generating Station and large industrial loads in the area.

For the East Range GO facilities development, the three 115kV lines emanating from the Syl Laskin Generating Station that are proposed to be rebuilt as new double circuit structures are a critical component of the transmission which make up the 'North Shore Loop' system. This system provides service to the entire Arrowhead region of the East Range and Lake Superior North Shore and serves as generator outlet for the Laskin, Taconite Harbor, and Silver Bay generating stations. An outage on any of these three lines necessitates a reduction in this generation and places service to the area load at risk. Extended outages for reconstruction would likely be unacceptable to the industrial and other customers requiring electric service from such facilities. To therefore avoid disruption of service, the concept of building the first new double circuit line alongside (off-centerline) of one of the existing 115kV lines by acquiring an additional 30 feet of ROW has been incorporated into the GO facilities development plans. This would reduce the outages necessary for construction and the cut over to the new circuits. These short duration outages should be able to be coordinated with planned generating unit outages to minimize financial and other impacts. Nonetheless, constructability is a much more significant issue with the East Range GO facility development plans.

2.3 NATURAL GAS PIPELINE ROUTES

This Joint Application describes natural gas pipelines necessary to provide startup and backup fuel to the IGCC Power Station located at the preferred and alternate Sites. The proposed natural gas pipeline routes are referred to in this Joint Application as the "West Range Proposed Natural Gas Pipeline Route" and the "East Range Proposed Natural Gas Pipeline Route."

Natural gas will be used to start up Mesaba One and Two and as a backup fuel when syngas from the gasifiers is unavailable. The maximum one day natural gas flow is expected to be about 105 million standard cubic feet of gas per phase of the IGCC Power Station.

Minnesota's Iron Range is served by two major natural gas pipeline transmission companies: Great Lakes Gas Transmission Company ("GLG") and NNG. The GLG natural gas pipeline transmission system interconnects with NNG's natural gas pipeline system near Carlton, Minnesota. Figure 2.3-1shows the location of the natural gas transmission pipelines north of Carlton for both companies. Figure 2.3-2shows the routing of currently operating GLG and NNG natural gas pipelines in the vicinity of the West Range Site.

For the West Range Proposed Natural Gas Pipeline Route, the Applicant is requesting a partial exemption from the pipeline routing permit procedures. Under Minnesota rules governing the partial exemption, the Applicant is not required to complete a detailed environmental analysis of multiple potential pipeline routes. The Applicant must only identify alternate routes that have been considered and provide evidence in the Application of alternate route consideration (Minn. R. 4415.0140, subp. 2). Such evidence is provided in Section 2.5.4.2.

For the East Range Site, the Proposed Natural Gas Pipeline would be constructed, owned and operated by NNG, and would be an extension of NNG's interstate pipeline system. As an interstate pipeline, the East Range natural gas supply pipeline would not be subject to Minnesota Pipeline Route Permit requirements, but would be permitted by NNG under the FERC process for interstate pipelines (the FERC review process is described in Section 1.10.2.8). A general description of the East Range Proposed Natural Gas Pipeline Route is provided in Section 2.6.4.

Minnesota Rule 4415.0010, subpart 32 defines the permitted gas pipeline “route” as “the proposed location of a pipeline between two end points. A route may have a variable width from the minimum required for the pipeline right-of-way up to 1.25 miles.” The Applicant hereby requests a narrower one-half mile wide route for each of the requested gas pipelines. The requested one-half mile route would be one quarter-mile (1,320 feet) in width on each side of the Proposed Natural Gas Pipeline Route centerline alignment. The Proposed Natural Gas Pipeline Route alignments are shown in Figures 2.5-13 through 2.5-16. The requested route width will be sufficient to allow flexibility to minimize impacts and accommodate land owners concerns during final route design. Within the requested routes, the Applicant will acquire a minimum 100-foot-wide temporary ROW for construction of the pipeline and a minimum 70-foot-wide permanent ROW.

Figure 2.3-1 GLG (Red) and NNG (Blue) Natural Gas Pipelines in the Vicinity of the Iron Range

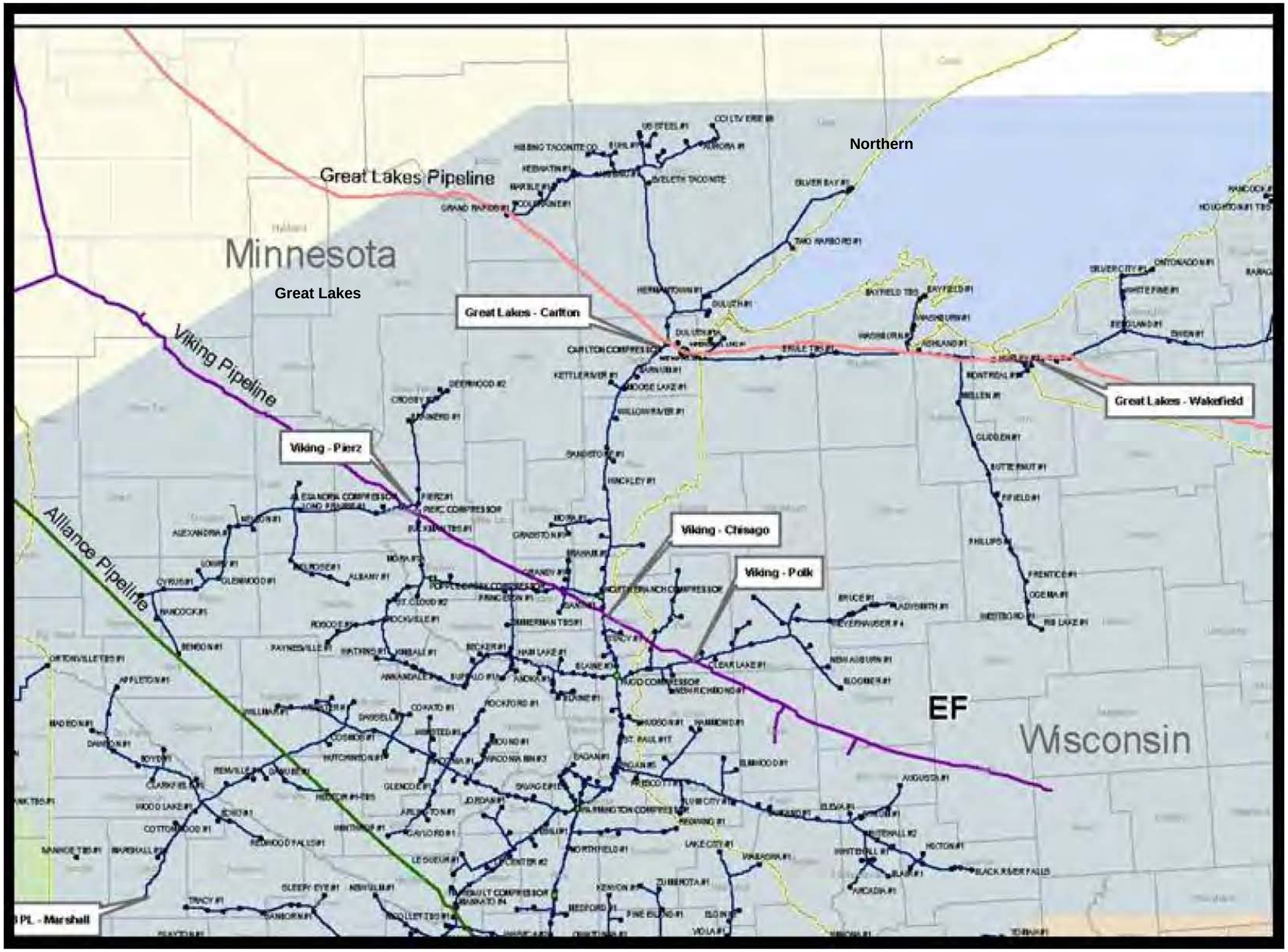
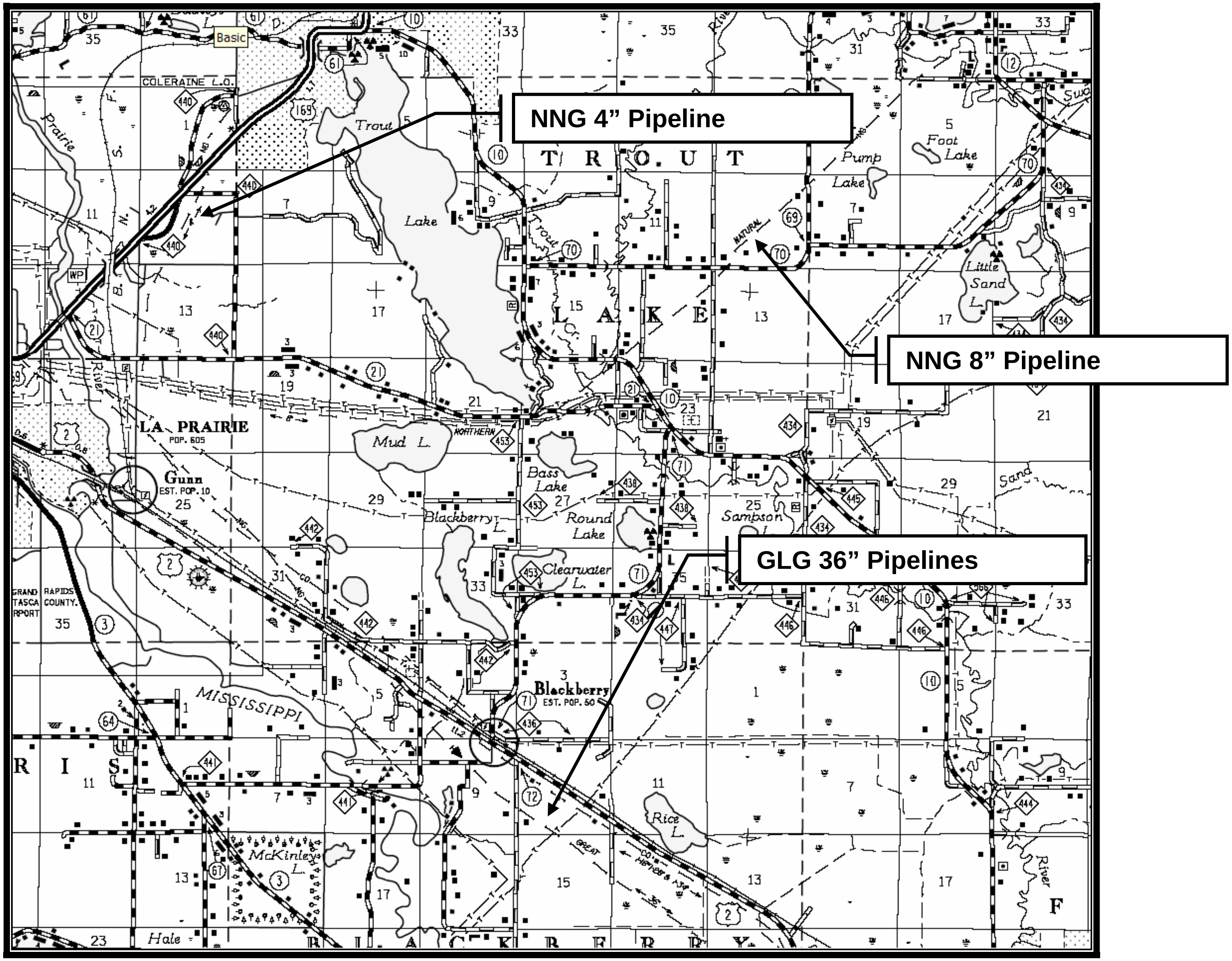


Figure 2.3-2 Natural Gas Pipelines In the Vicinity of the West Range Site



2.4 PROHIBITED HVTL ROUTES AND LEPGP SITES

Minnesota Rules Chapter 4400 specifically identifies prohibited HVTL routes (Minn. R. 4400.3350) and power plant sites (Minn. R. 4400.3450). For example, no HVTL may be routed through state or national wilderness areas. HVTLs also may not be routed through state or national parks or state scientific and natural areas unless the HVTL would not materially damage or impair the purpose for which the area was designated, and no feasible and prudent alternative exists. None of the proposed HVTL routes pass through prohibited areas.

No power plant site may be located in national parks; national historic sites and landmarks; national historic districts; national wildlife refuges; national monuments; national wild, scenic, and recreational riverways; state wild, scenic, and recreational rivers and their land use districts; state parks; nature conservancy preserves; state scientific and natural areas; and state and national wilderness areas.

The prohibited power plant site areas identified above, however, may be used for water intake or discharge facilities. Conditions may be included in a site permit if any of these areas are used for water intake or discharge facilities to protect these areas for the purposes for which they were designated. The permit may consider the adverse effects on these areas of proposed sites. In the case of the West Range Site, the Hill-Annex State Park currently pumps water out of the Hill-Annex pit in order to allow visitors to the Park access to some of the former mining facilities. Part of the water supply infrastructure for the West Range Site may be partially located within the Hill-Annex State Park (see Section 3.6.1.1 and Figure 3.4-6) in order to draw water from and otherwise assist the Park with its ongoing water level management issues.

Finally, Minn. R. 4400.3450, subp. 4 dictates that no LEPGP Site may be permitted where the developed portion of the plant site, excluding water storage reservoirs and cooling ponds, includes more than 0.5 acres of prime farmland per megawatt of net generating capacity, or where makeup water storage reservoir or cooling pond facilities include more than 0.5 acres of prime farmland per megawatt of net generating capacity, unless there is no feasible and prudent alternative. Neither the West Range nor East Range Site will violate these rules as neither Site exceeds this 0.5 acres/MW. Sections 7.1.10.3 and 8.1.10.3 provide information on prime farmland on the West Range and East Range Sites, respectively.

Minnesota Rules chapter 4415 has no specific reference to prohibited routes for gas pipelines. However, the proposed gas pipeline routes do not pass through the prohibited areas described in the HVTL or LEPGP rules.

2.5 PREFERRED SITE-WEST RANGE

This section describes the IGCC Power Station Footprint, Buffer Land, the Associated Facilities, and the Additional Lands that comprise the West Range Site.

2.5.1 IGCC Power Station Footprint and Buffer Land

The IGCC Power Station Footprint and Buffer Land currently includes approximately 1,260 acres of undeveloped land that is unoccupied. The IGCC Power Station Footprint is located completely within the city limits of Taconite, Minnesota in Iron Range Township (i.e., 4th Principal Meridian, T56N, R24W) and is generally bounded by County Road 7 to the west, an HVTL corridor to the north, and the Township boundary to the east. Only the northern-most 200 acres of the Buffer Land is outside the City limits. Figures 2.1-2 and 2.1-3 show the IGCC Power Station Footprint, the Buffer Land, Water Resources, and the Associated Facilities. The Station Footprint and Buffer Land lie completely within an area that is zoned industrial by Itasca County. The equipment layout within the Station Footprint is shown in Figure 3.2-1.

The IGCC Power Station Footprint and Buffer Land are mostly wooded and include about 300 acres of wetlands. Approximately 35 acres of wetland will be permanently affected by the Station Footprint and require wetland mitigation. Figure 2.5-1 shows that the terrain within the Buffer Land on site is dominated by a hill that rises approximately 60 feet above the IGCC Power Station's base grade. One HVTL corridor traverses the Buffer Land in a north/south direction and another east-west HVTL traverses the buffer land to the north of the IGCC Power Station Footprint. The HVTLs that occupy the north-south corridor are not currently used. Information on the environmental setting and potential environmental impacts from Mesaba One and Mesaba Two are discussed in detail in Section 7.

Excelsior has obtained option rights to purchase the 1,260 acre parcel that includes the IGCC Power Station Footprint and Buffer Land. Several areas of the optioned property may be able to be used to offset wetlands impacts caused by the construction of the IGCC Power Station and its Associated Facilities.

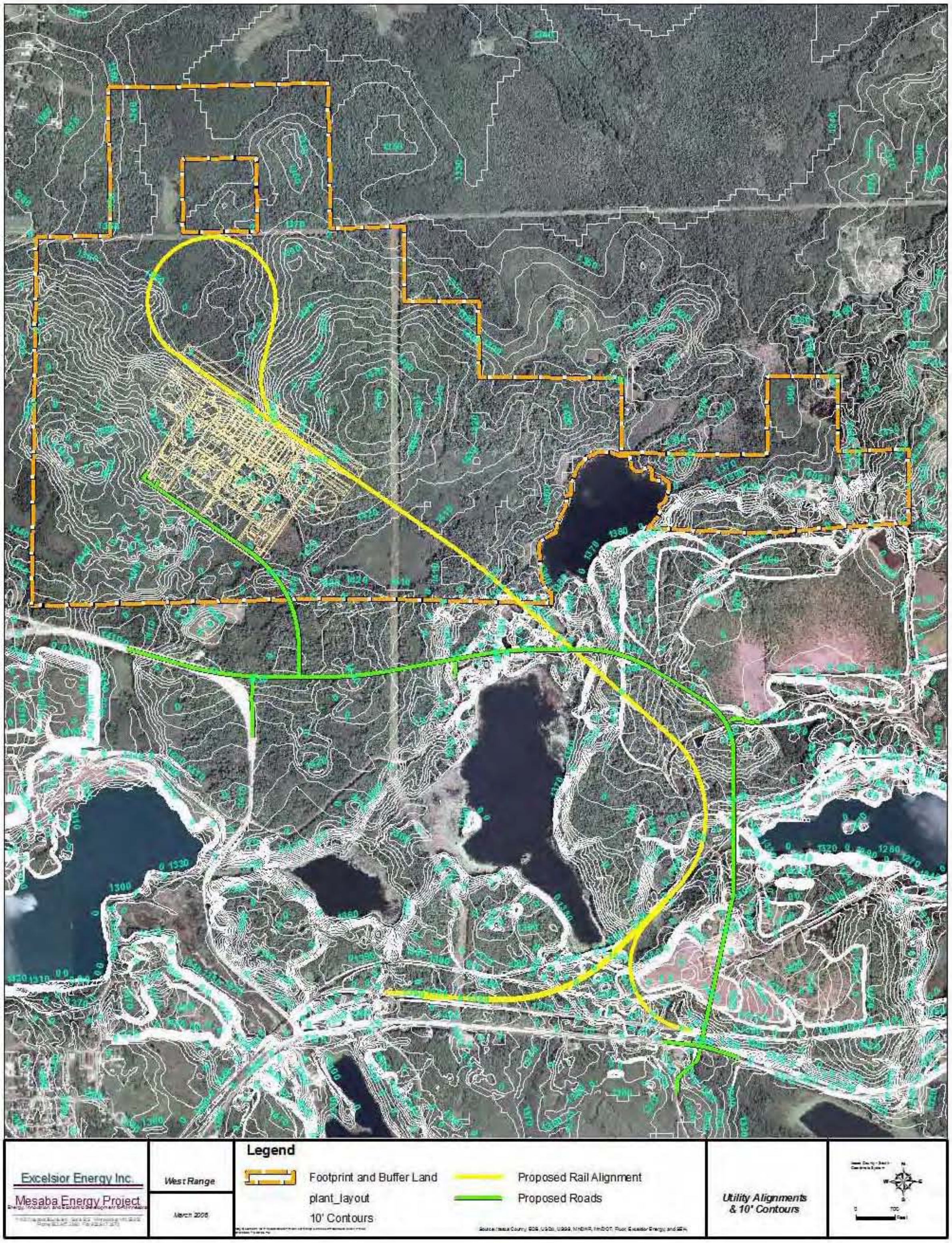
2.5.2 Associated Facilities

Easements across public and private lands would be required for the Associated Facilities. Figures 2.1-2 and 2.1-3 show the location of Associated Facilities on the West Range Site. Environmentally relevant details of the Associated Facilities required for the construction, maintenance, and operation of Mesaba One and Mesaba Two are presented in Section 3. Information on the current environmental setting of the Associated Facilities' corridors and the potential environmental impacts that would result from Mesaba One and Mesaba Two are discussed in Section 7. HVTL routes associated with the West Range Site are described below in Section 2.5.3; natural gas pipeline routes are described in Section 2.5.4.

2.5.3 HVTL Routes

The Applicant considered a range of alternate HVTL configurations, including staggered and unstaggered 230kV and 345kV transmission concepts, each of which offered varying levels of cost and reliability. The development of alternative transmission configurations to meet the Phase I and II IGCC Power Station GO requirements is discussed in Section 4 and in the ES. Figure 2.2-1 shows the Applicant's West Range Preferred and Alternate HVTL Routes for interconnecting Mesaba One and Two to the POI. Subsections 2.5.3.1 and 2.5.3.2 below contain a narrative description of the two routes. Figure 2.5-2 shows the significant receptors that are in the vicinity of the two routes.

Figure 2.5-1 West Range Site Topography



2.5.3.1 West Range Preferred Plan (Plan A)

The Applicant believes its preferred 345kV double circuit plan is the superior transmission choice. In addition to making use of exiting ROW, it also minimizes the distance between the Station Footprint and the Blackberry Substation. Further, the Applicant believes that over time, 345kV transmission development will be necessary or desirable both on the Iron Range and from the Blackberry POI to other facility interconnection points. Thus, designing the Mesaba generator outlet facilities to initially operate at 230kV and then convert to 345kV will both minimize capital costs and be in concert with necessary longer term regional transmission needs.

The design and configuration of the proposed line is described in detail in Section 4. Information on the environmental setting and potential environmental impacts of the West Range Preferred HVTL Route are discussed in detail in Section 7.

2.5.3.1.1 Preferred Route (WRA-1)

The West Range Preferred HVTL Route would be developed in two stages. The corridor would contain single pole, double circuit structures and would carry two bundled conductors rated as 345kV between the West Range Site and the Blackberry Substation (see Figures 4.3-1 and 4.3-2). The double circuit 345kV HVTLs would be initially operated at 230kV voltage to support Mesaba One operations. When operation of Mesaba Two commences, necessary transformers and other substation equipment would be added to upgrade the HVTL to its rated 345kV capacity.

Route WRA-1 extends east from the IGCC Power Station's high voltage switchyard about 0.8 miles to Minnesota Power's ("MP") existing 45 Line ROW and then south from the southern boundary of the Buffer Land about 1.6 miles to the retired Greenway Substation. The route continues south from the Greenway Substation approximately 6.2 miles over new, but relatively remote, ROW to intersect MP's 83L and 20L. At that point, the route follows the existing MP ROW about 1 mile east to the Blackberry Substation.

Route WRA-1 is shown in a series of maps in Figures 2.5-3, 2.5-4, and 2.5-5.

2.5.3.1.2 Alternate Route (WRA-1A)

Minn. R. 4400.1150, subp.2.C requires that at least one alternate route be proposed if the HVTL exceeds 200kV, is five miles or greater in length, and less than 80 percent of the HVTL is located along existing HVTL rights of way (Minn. R. 4400.2000, subps. 1.D and 1.E). Because the West Range Preferred HVTL Route will require additional new ROW of about six miles, the Applicant must propose at least one alternate HVTL route.

The alternate route proposed by the Applicant to satisfy the above requirement is shown in Figures 2.5-6, 2.5-7 and 2.5-8. This alternate route shares in common with the Preferred Route WRA-1 about 3.3 miles of ROW and parallels about 2 miles of the secondary road known as Twin Lakes Road. Route WRA-1A crosses or abuts the Swan River in several locations and crosses numerous areas that have been cleared but are unoccupied. This route provides a direct path to the POI, affects a limited number of residents (see Section 7.2.2), can be moved to generally avoid nearby residents, and shares 0.9 miles of ROW with MP's existing 62L corridor.

2.5.3.2 West Range Contingent Plan (Plan B)

As noted in Section 2.2.2.2, Plan B will be implemented if MISO determines that the 345 kV development associated with Plan A is inconsistent with regional transmission planning initiatives. The design and configuration of the proposed HVTL and structures are described in detail in Section 4. Information on the environmental setting and potential environmental impacts of the West Range Alternative HVTL Route are discussed in detail in Section 7.1.3.3.

2.5.3.2.1 Plan B Phase I

2.5.3.2.1A Preferred Route (WRB-1)

The preferred Route WRB-1 is identical to the preferred Route WRA-1 but involves the use of a double circuit 230kV HVTL instead of a 345 kV double circuit HVTL. The Plan B preferred route will also require the same additional new six miles of ROW and, therefore, the Applicant must propose at least one alternative HVTL route.

2.5.3.2.1B Alternate Route (WRB-1A)

The alternate Route WRB-1A is identical to the preferred Route WRA-1A with the exception that Route WRB-1A will involve use of a double circuit 230kV HVTL.

2.5.3.2.2 Plan B Phase II

2.5.3.2.2A Preferred Route (WRB-2)

See Section 2.2.2.2.2. The preferred route WRB-2 for Phase II under Plan B is the route not selected in Plan B Phase I (in other words one of the two routes identified in the previous Section 2.5.3.2.1).

2.5.3.2.2B Alternate Route (WRB-2A)

See Section 2.2.2.2.2. The alternate route WRB-2A involves use of the existing 28L and 62L corridors as shown in Figures 2.5-9 through 2.5-12. See Figure 4.3-15 to identify HVTL structure differences used in this route.

Figure 2.5-2 Significant Receptors Along the West Range Preferred and Alternate HVTL Routes

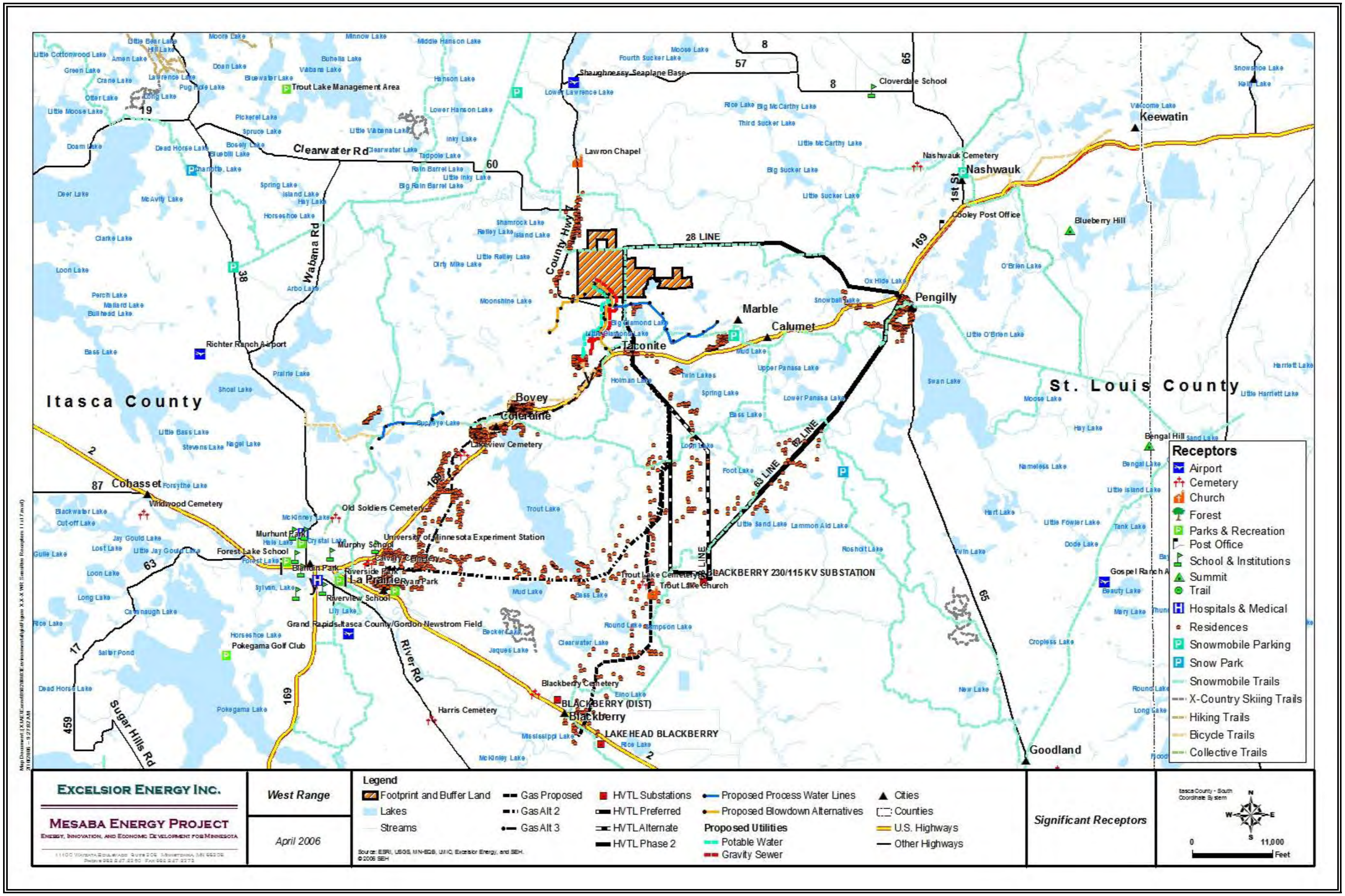


Figure 2.5-3 West Range Plan A: Preferred HVTL Route (WRA-1), Segment 1

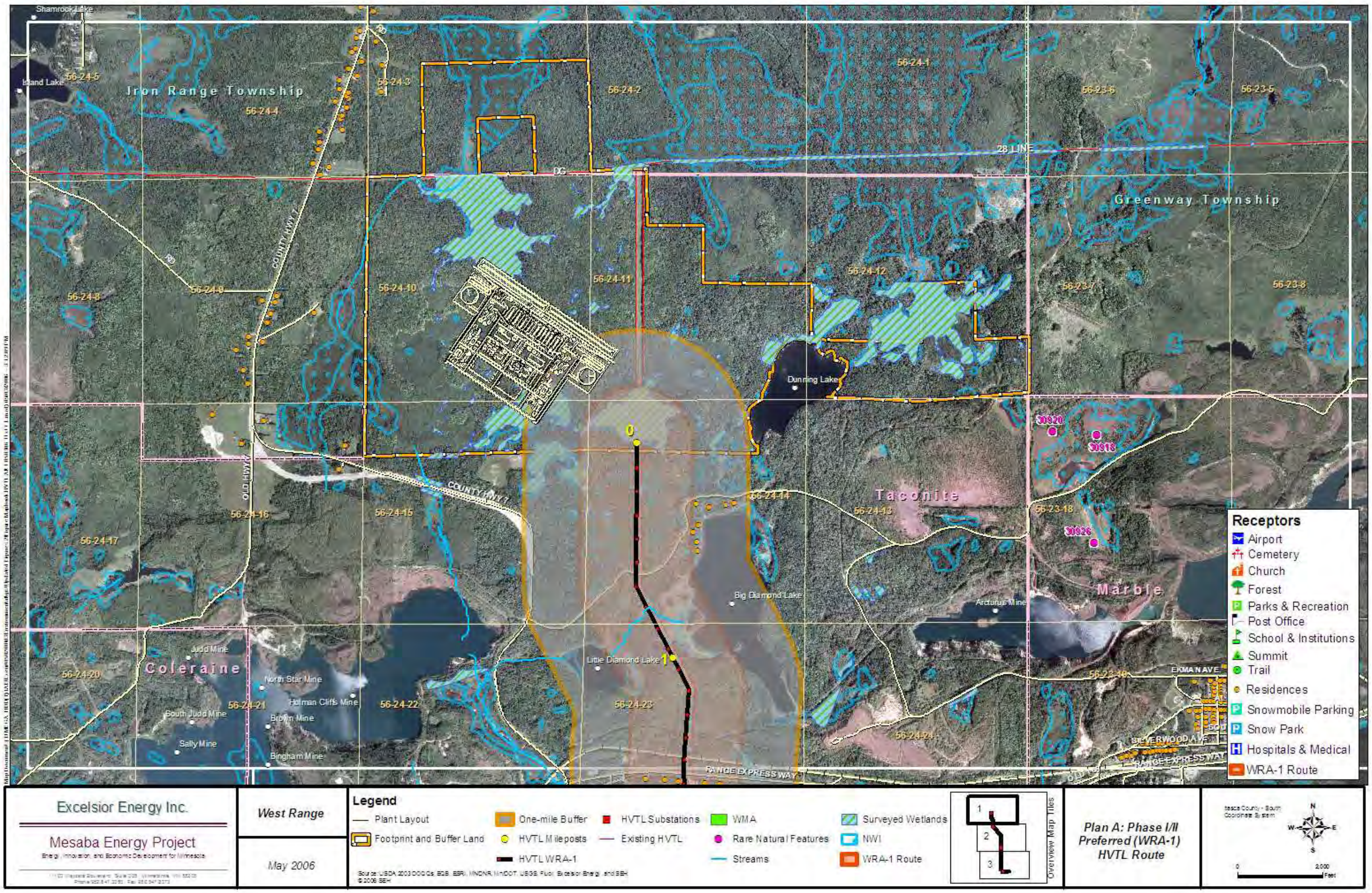


Figure 2.5-4 West Range Plan A Preferred HVTL Route (WRA-1), Segment 2

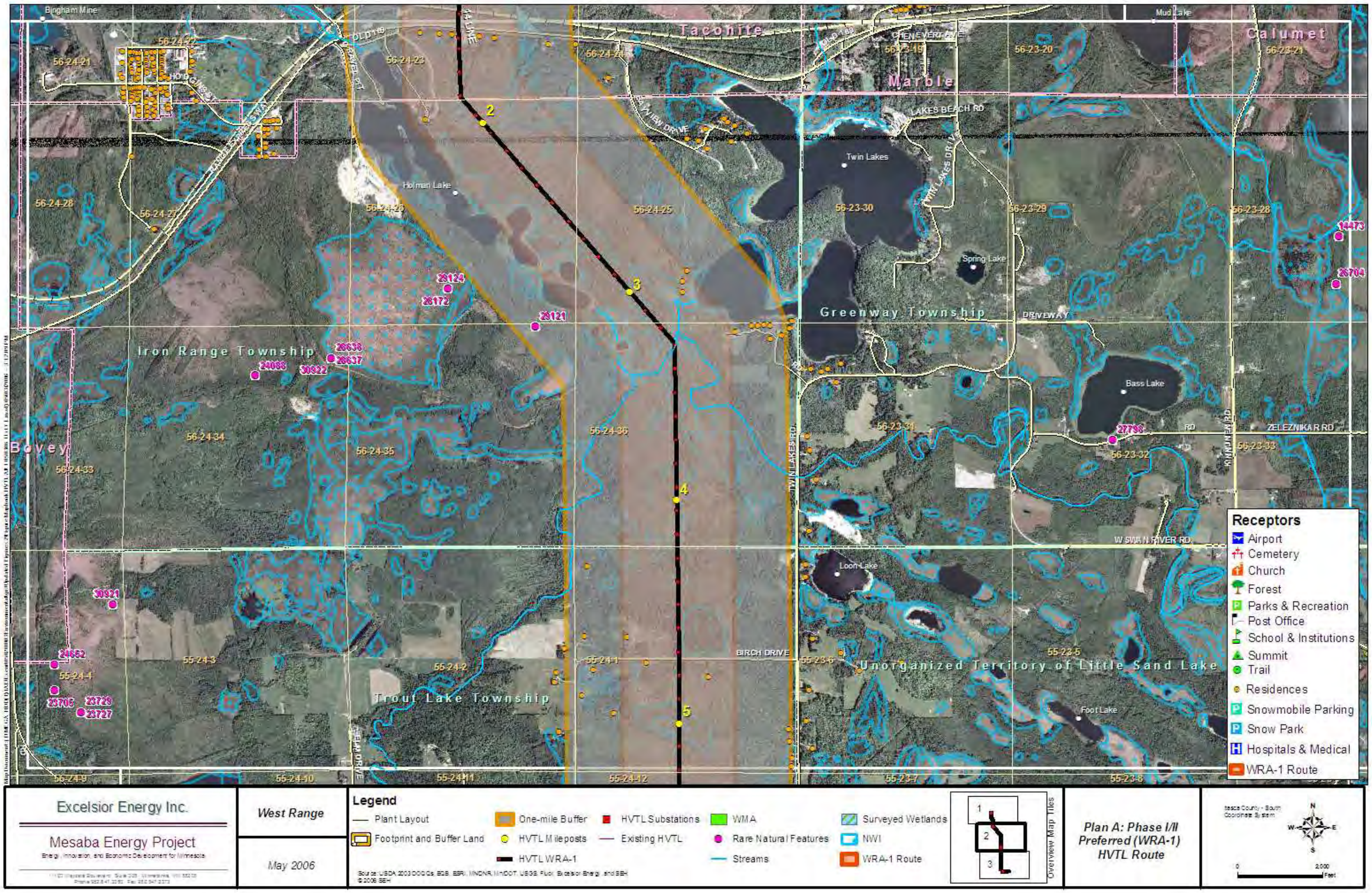


Figure 2.5-5 West Range Plan A Preferred HVTL Route (WRA-1), Segment 3

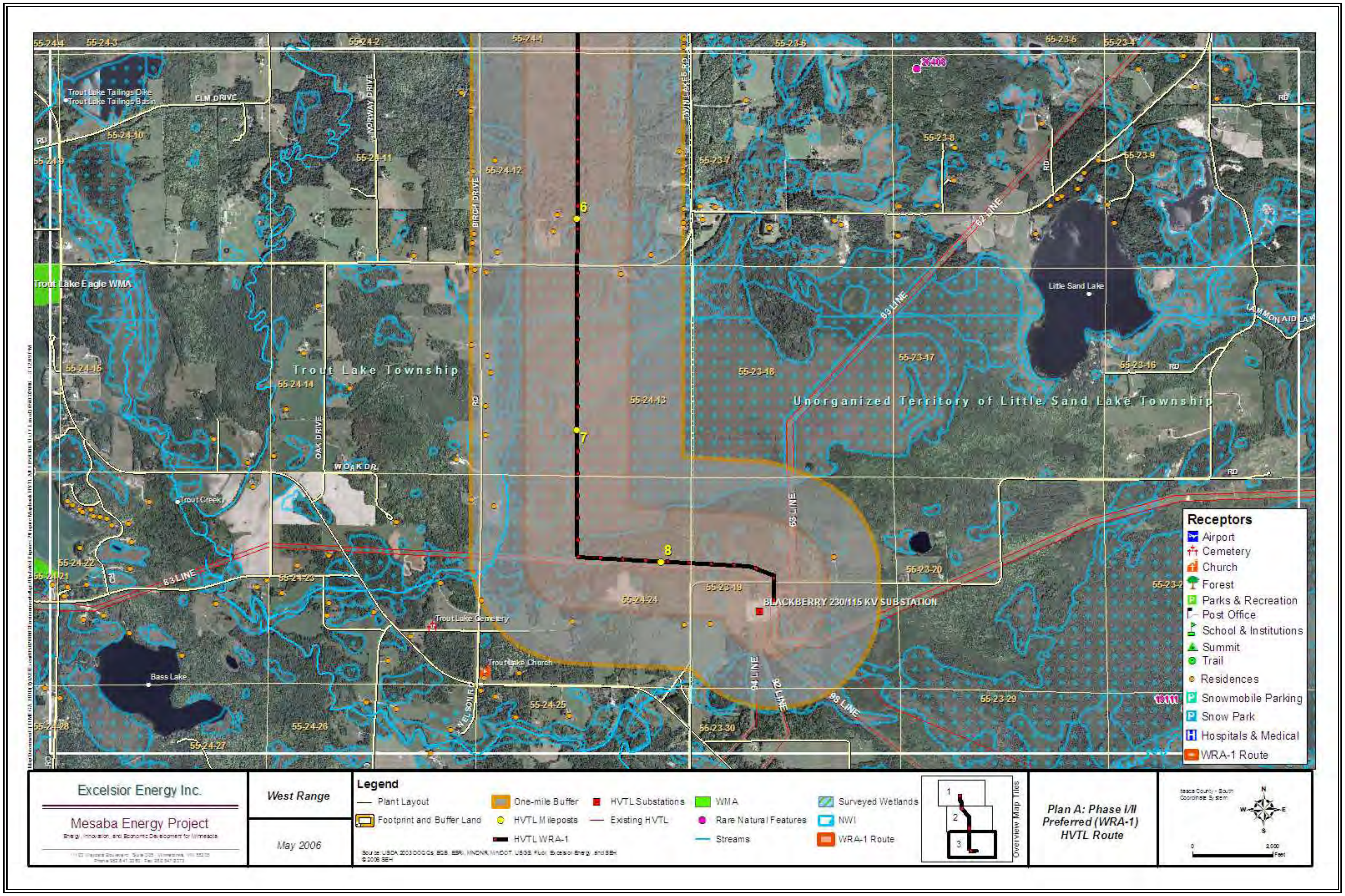


Figure 2.5-6 West Range Plan A Alternate HVTL Route (WRA-1A), Segment 1

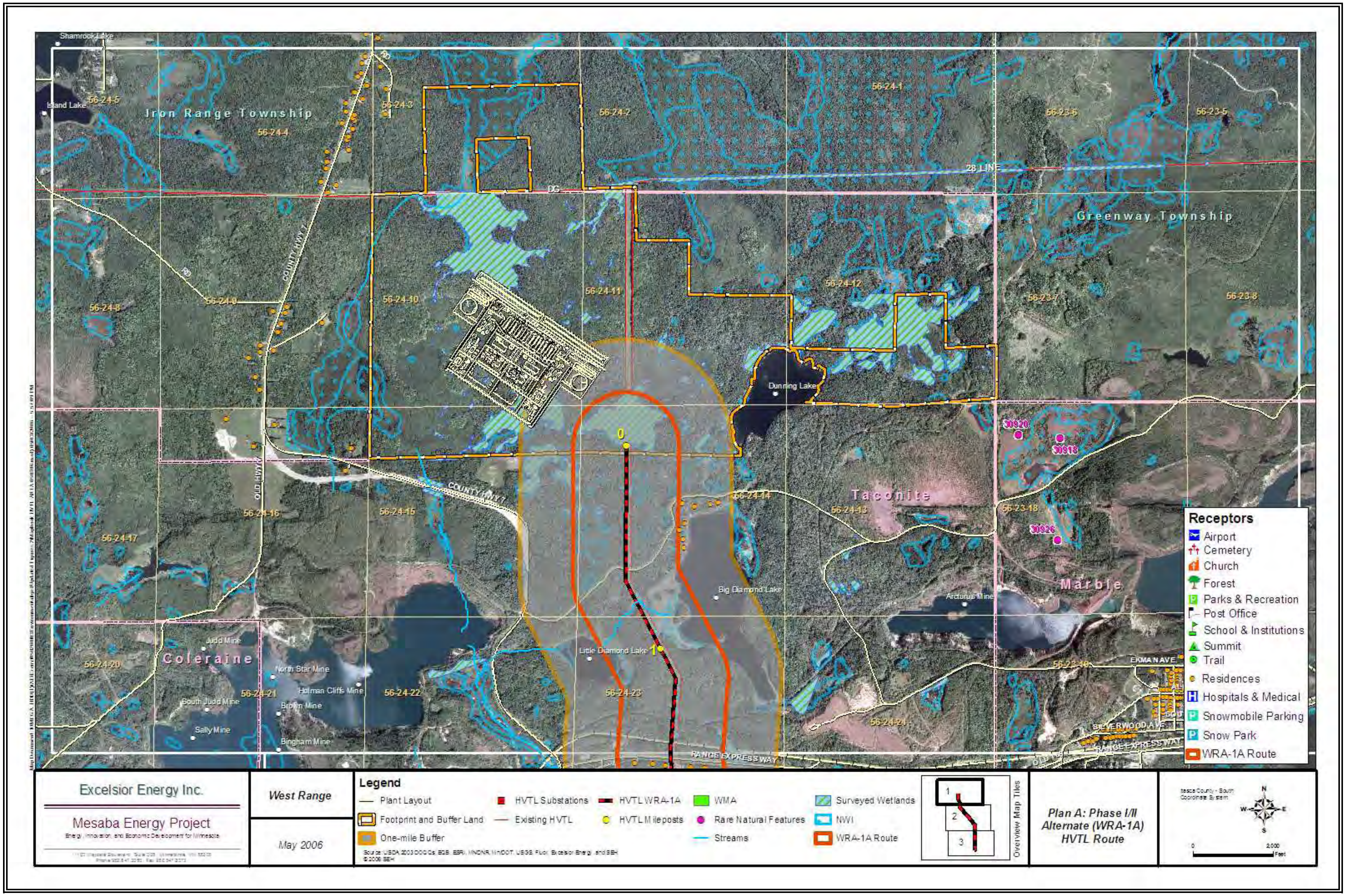


Figure 2.5-7 West Range Plan A Alternate HVTL Route (WRA-1A), Segment 2

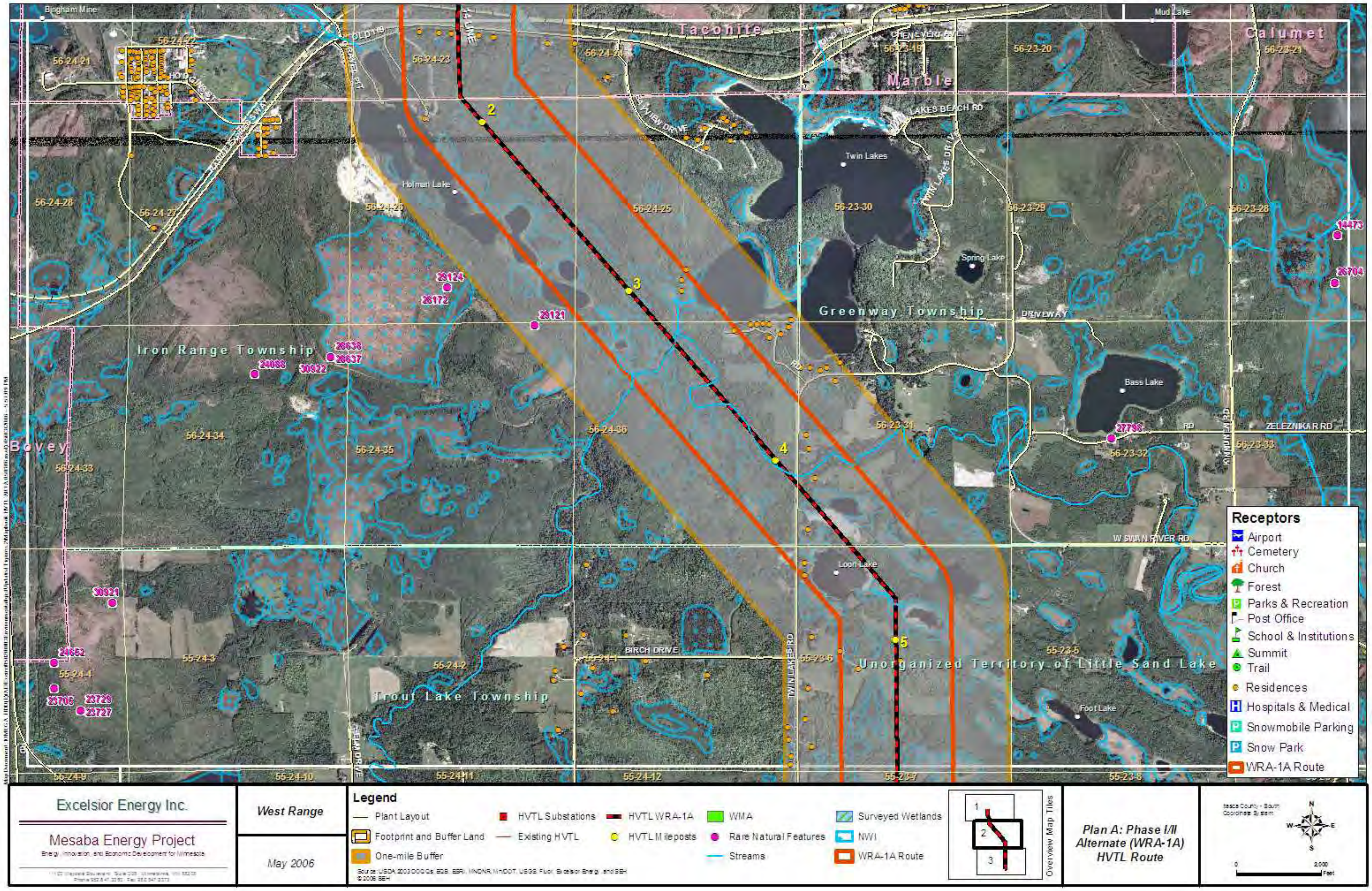


Figure 2.5-8 West Range Plan A Alternate HVTL Route (WRA-1A), Segment 3

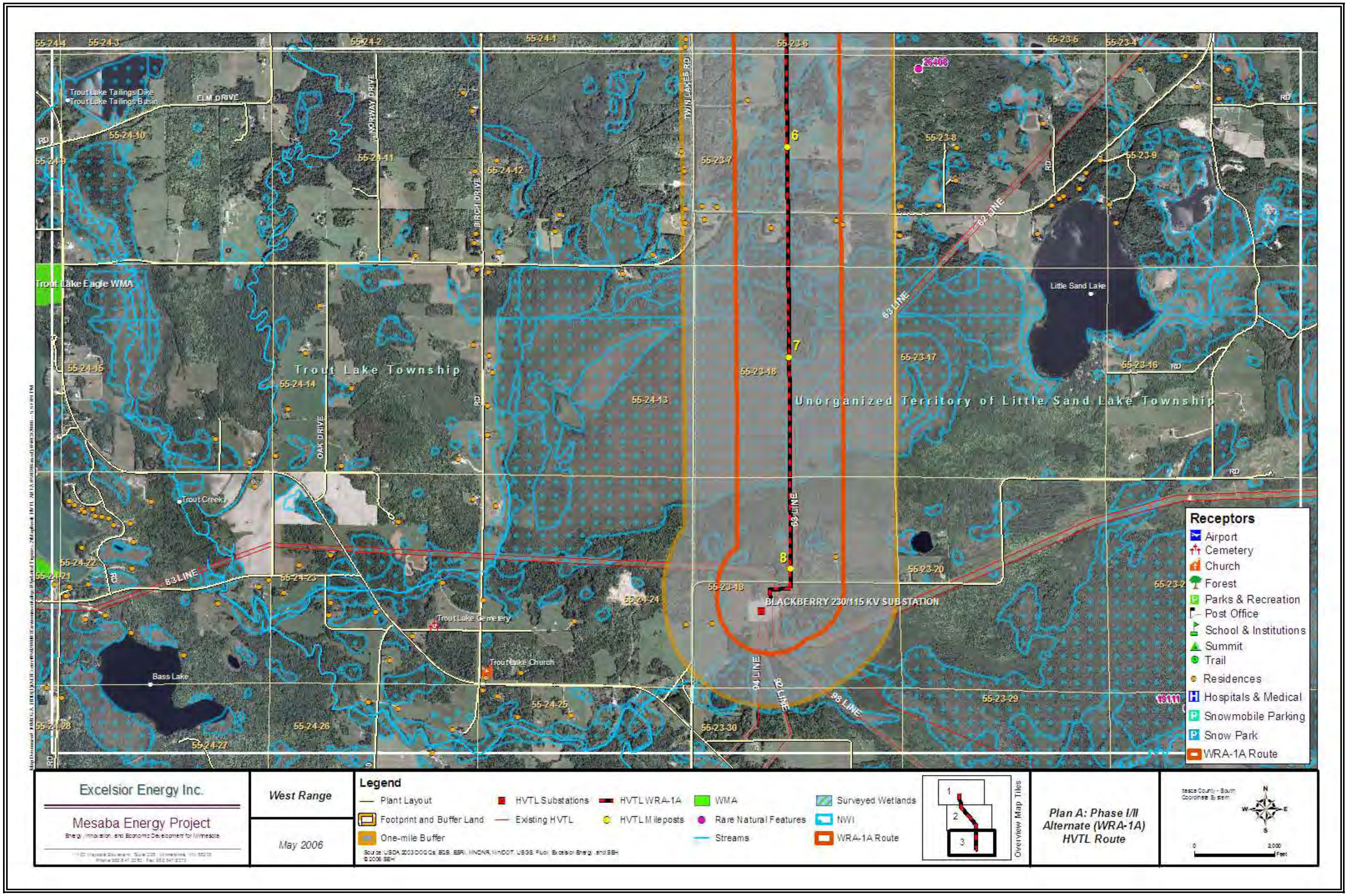


Figure 2.5-9 West Range Plan B Phase II Alternate HVTL Route Route Phase II (WRB-2A), Segment 1

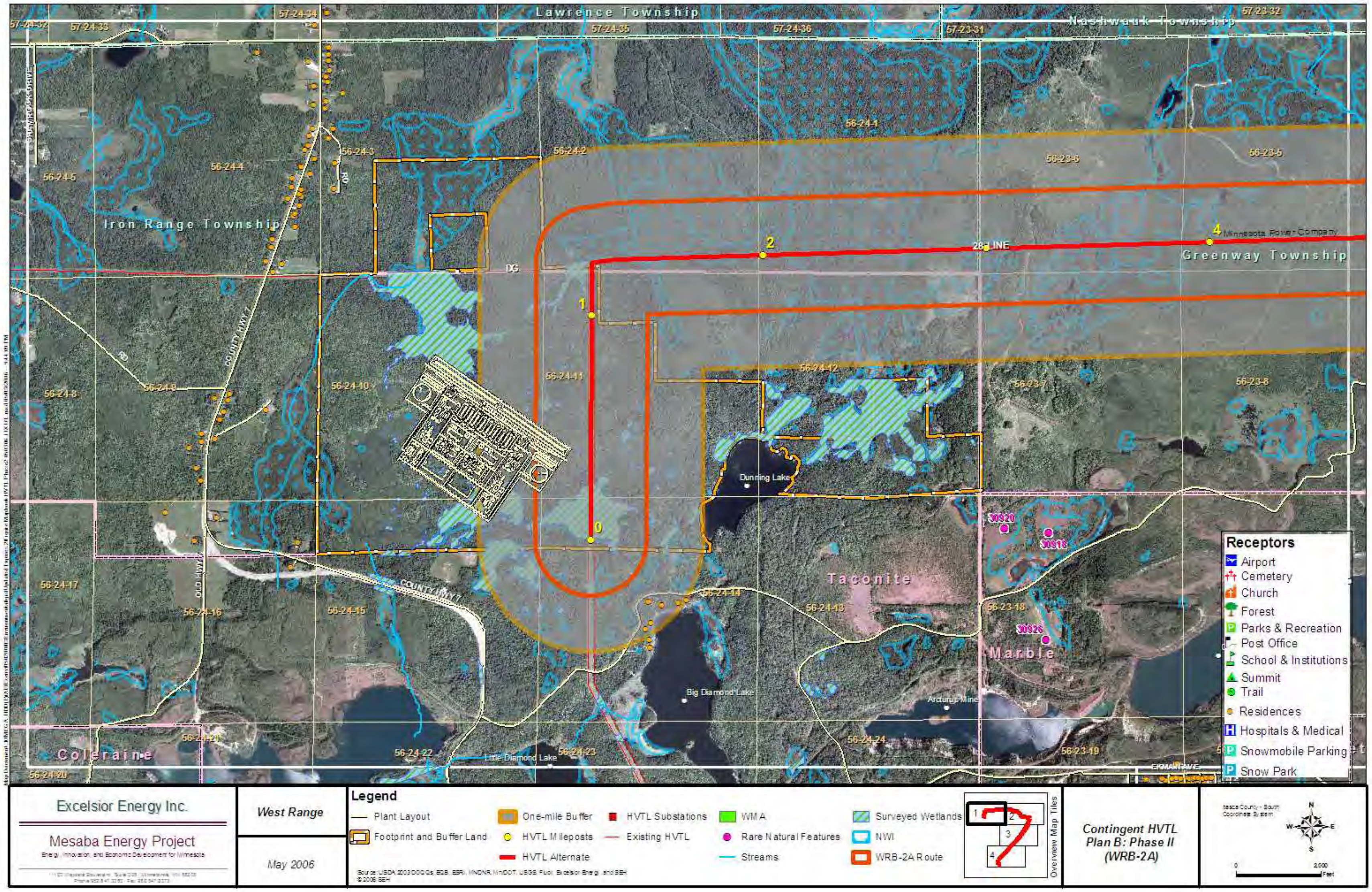


Figure 2.5-10 West Range Plan B Phase II Alternate HVTL Route Route Phase II (WRB-2A), Segment 2

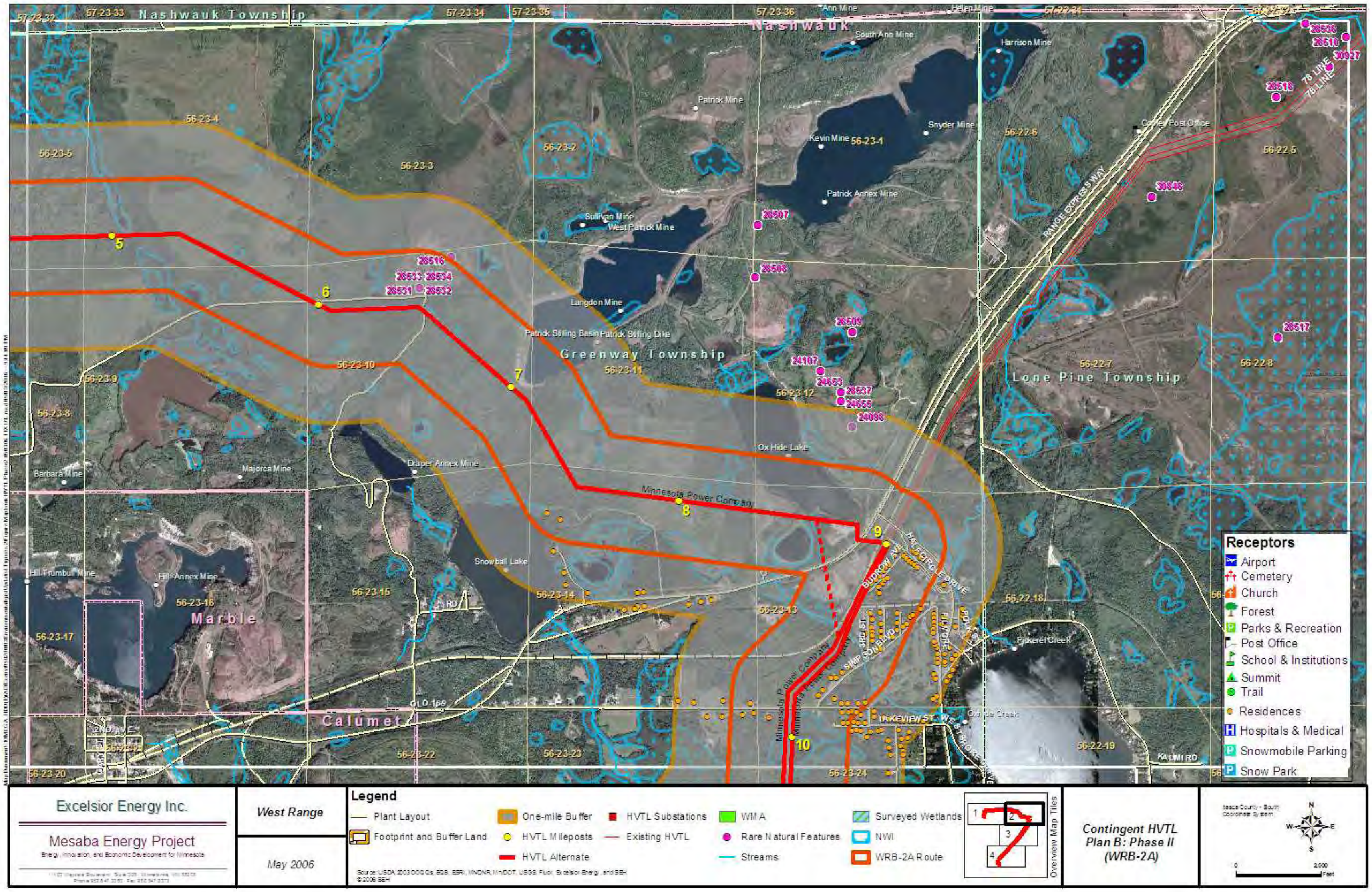


Figure 2.5-11 West Range Plan B Phase II Alternate HVTL Route Route Phase II (WRB-2A), Segment 3

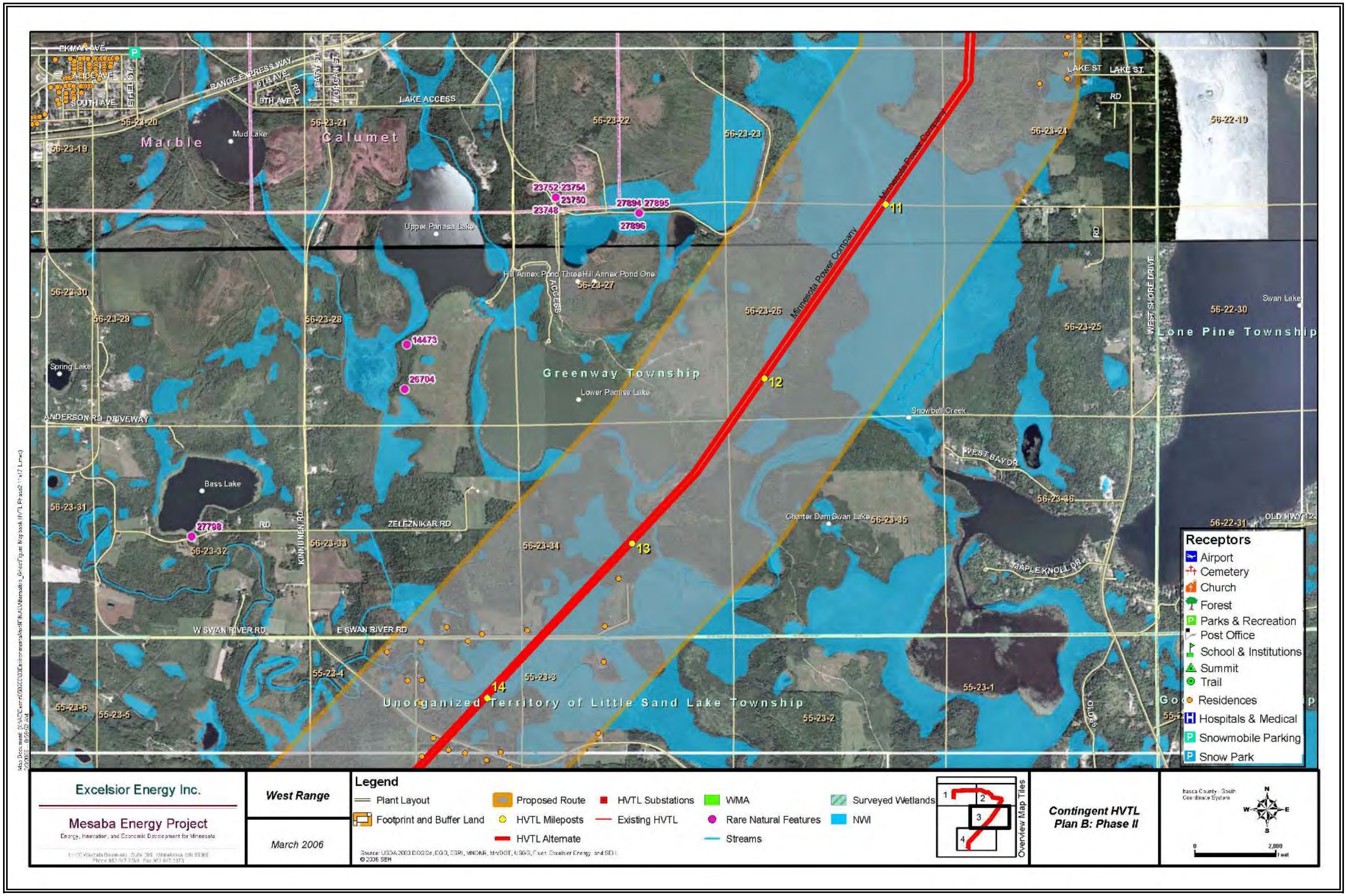
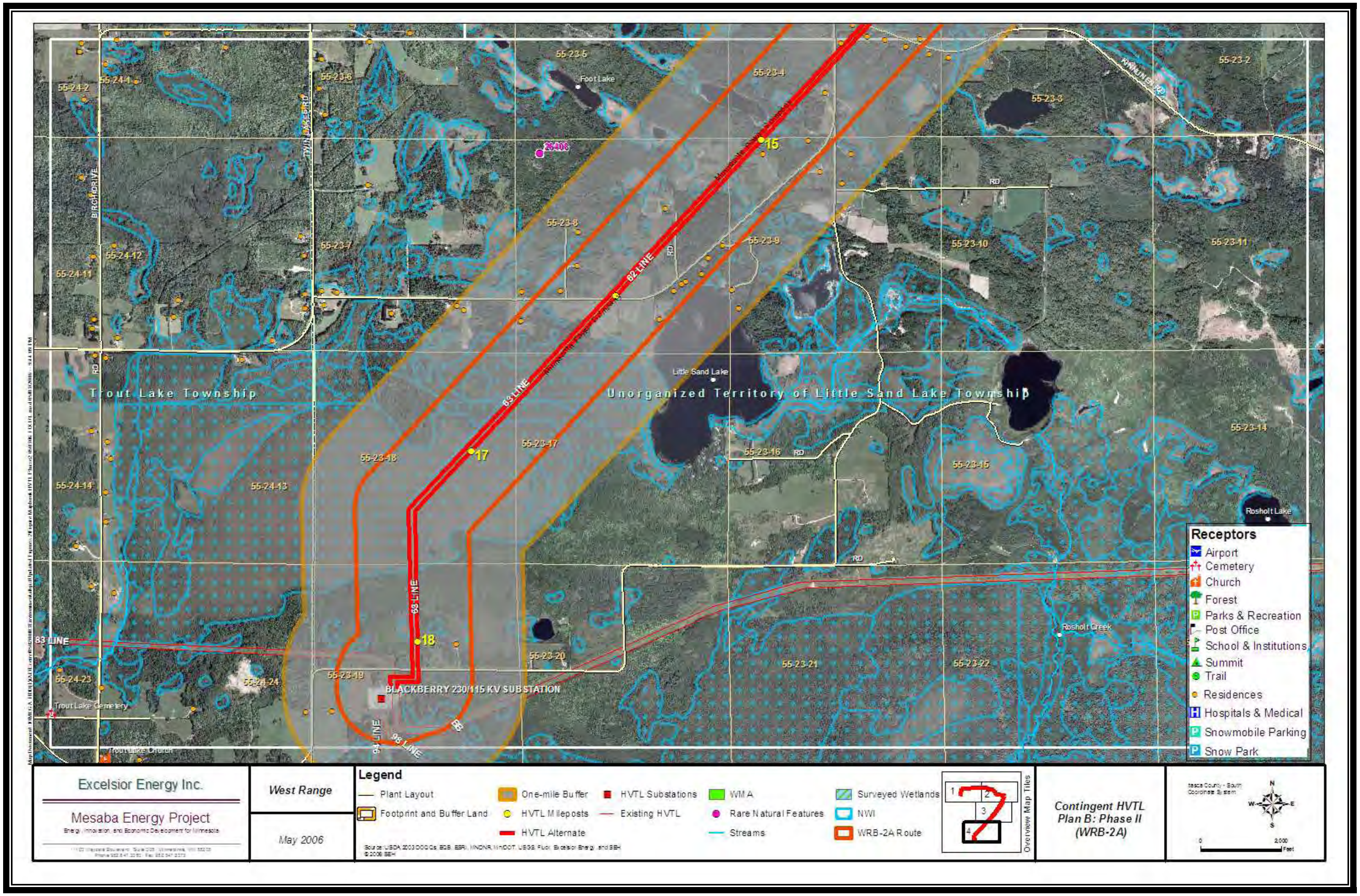


Figure 2.5-12 West Range Plan B Phase II Alternate HVTL Route Route Phase II (WRB-2A), Segment 4



2.5.4 Natural Gas Pipeline Routes

2.5.4.1 Proposed Natural Gas Pipeline Route

The Applicant proposes to construct, own and operate one 16-24 inch diameter gas pipeline to supply natural gas to the IGCC Power Station that would tap the existing 36-inch GLG pipelines located approximately 12 miles due south of the West Range Power Station Footprint. The proposed gas pipeline route would originate about 0.6 miles southeast of the GLG block valve station located just south of U.S. Highway 2 near the unincorporated town of Blackberry, Minnesota (see Figure 2.3-2). The proposed pipeline route would follow 0.9 miles of existing pipeline or HVTL ROWs, and will require approximately 12.3 miles of new pipeline easements along the 13.2 mile proposed route. Figures 2.5-13 through 2.5-16 provide detailed aerial photographs of the proposed pipeline route and indicate the significant receptors identified in Figure 2.5-2.

The first 2.0 miles of the route would extend north-northeast to avoid a large wetland bog north of U.S. Highway 2. From there the proposed route would turn due east approximately 2 miles to be aligned directly south of the West Range IGCC Power Station. The proposed route would extend north from this point about 1.5 miles where it would cross the Swan River and then continue until intersecting with NNG's 8-inch pipeline ROW. The route would parallel the NNG pipeline 0.9 miles and then follow the proposed HVTL preferred corridor ROW for 4.2 miles. Within this segment, the route would cross the Swan River a second time. The last 1.3 miles of the proposed route would run within an existing unused HVTL corridor to the West Range Site. A milepost map is provided as Figure 2.5-17 identifying significant features along the West Range Proposed Natural Gas Pipeline Route and other pipeline routes considered.

The following information is required by Minn. R. 4415.0115, subps. D.1 through D.5. for the West Range Proposed Natural Gas Pipeline Route:

- The general location of the West Range Proposed Natural Gas Pipeline Route is shown in Figure 1.5-2 as traversing from the GLG 36 inch diameter pipeline south of State Highway 2 near the unincorporated community of Blackberry, Minnesota to the West Range Site termination point, approximately 12 miles north in the City of Taconite, Minnesota. Figures 2.3-2 and 2.3-3 shows the GLG natural gas pipeline near the proposed tapping point.

- The planned use and purpose of the natural gas pipeline will be to provide startup and backup fuel for Mesaba One and Mesaba Two.

- The estimated cost of the West Range Proposed Natural Gas Pipeline Route is contained in below in Section 2.8.

- The planned in-service date for the West Range Proposed Natural Gas Pipeline Route is the 4th quarter of 2010. However, if a municipal entity constructs the pipeline for use by both Mesaba and Minnesota Steel, such in-service date could be earlier than 2010. (See Section 5 for a compilation of pipeline design and operational information.)

- Land uses traversed by the proposed route include grasslands, regeneration/young forest, deciduous forest land and smaller tracts of agricultural lands and wetlands. Detailed information regarding the existing land uses along the route and the environmental impacts to be expected in constructing and operating the West Range Proposed Natural Gas Pipeline are provided in Section 7.1.4. Three residences appear to be located between 100-300 feet of the centerline of the proposed route (see Section 7.2.3).

Sections 5.5 and 5.6 provide further descriptions of ROW requirements and pipeline construction procedures, respectively.

The design and configuration of the proposed pipeline is described in Section 5. Information on the environmental setting and potential environmental impacts of the proposed gas pipeline route are discussed in Section 7.

2.5.4.2 Other Considered Gas Pipeline Routes

The Applicant has considered two other possible natural gas pipeline routes to bring the required natural gas to the West Range IGCC Power Station. Both alternate routes, like the proposed route, would involve tapping the two existing 36-inch diameter GLG pipeline with an identically sized 16-20 inch pipeline. Unlike the proposed route, a pipeline developed along either of the other considered routes may be licensed, permitted, constructed, owned and operated by NNG rather than the Applicant (see Section 1.0 and Section 1.10.2.8). Both alternate routes would originate approximately 9.4 miles southwest of the West Range IGCC Power Station at the La Prairie tap and metering point located in La Prairie, Minnesota. These potential pipeline routes are presented in two sets of figures in this section for comparison purposes only as they are described in more detail and compared with the proposed route in Table 1.5-5 in Section 1.5.2.4.2 of the ES.

Figures 2.5-18 to 2.5-21 trace the NNG pipeline route labeled Alternate 2 from its tapping point in La Prairie to the IGCC Power Station Footprint via Trout Lake. Figures 2.5-22 through to 2.5-24 trace the NNG pipeline route labeled Alternate 3 from its tapping point in La Prairie to the IGCC Power Station Footprint via Coleraine and Bovey. Either of these two routes would be utilized by NNG for construction of its pipelines. However, the Applicant has evaluated each to assess its licensability and has placed such evaluations into the record of this proceeding in recognition of the potential for working with NNG to supply natural gas to Mesaba One and Mesaba Two.

Figure 2.5-13 West Range Proposed Natural Gas Pipeline Route: Segment 1

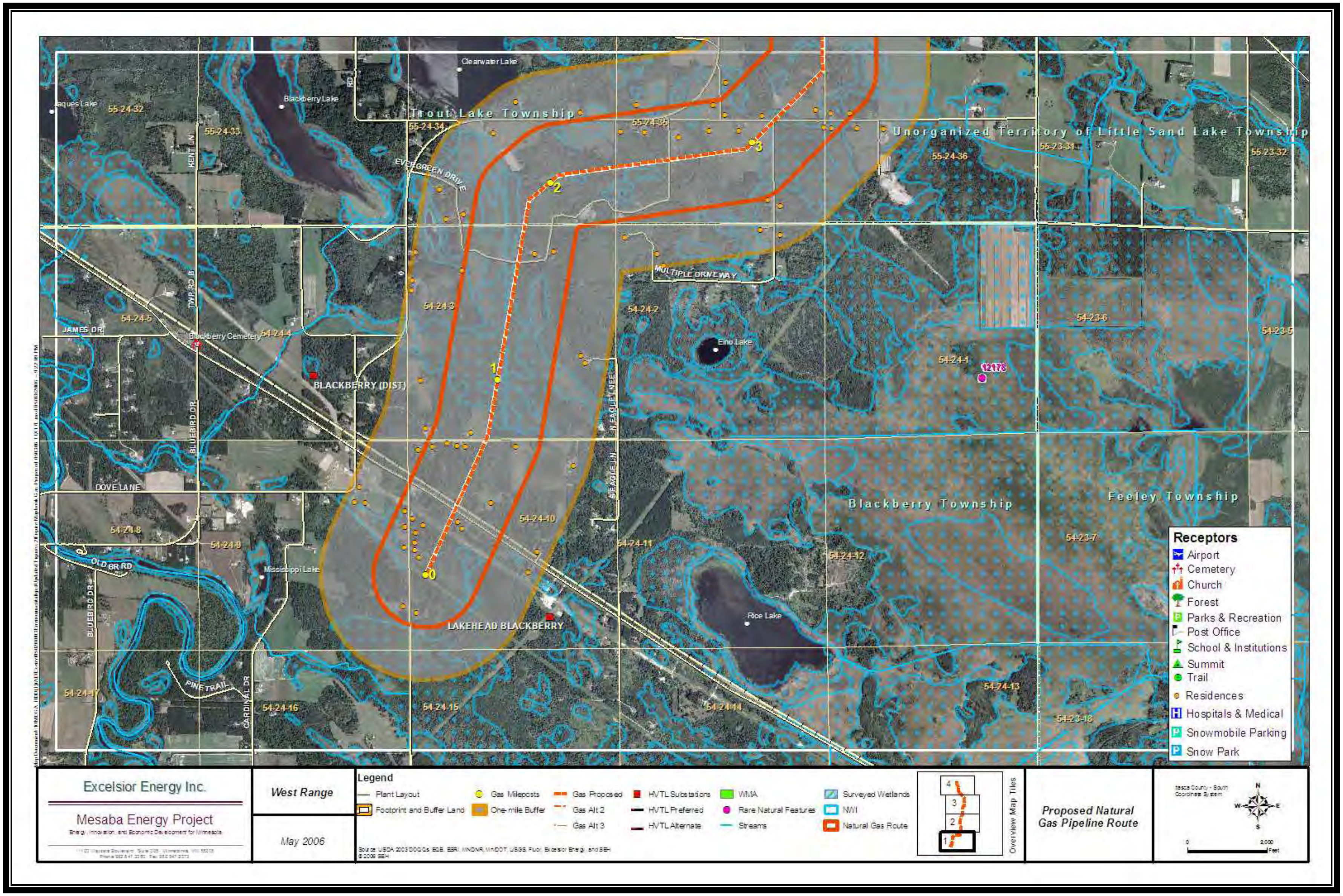


Figure 2.5-14 West Range Proposed Natural Gas Pipeline Route: Segment 2

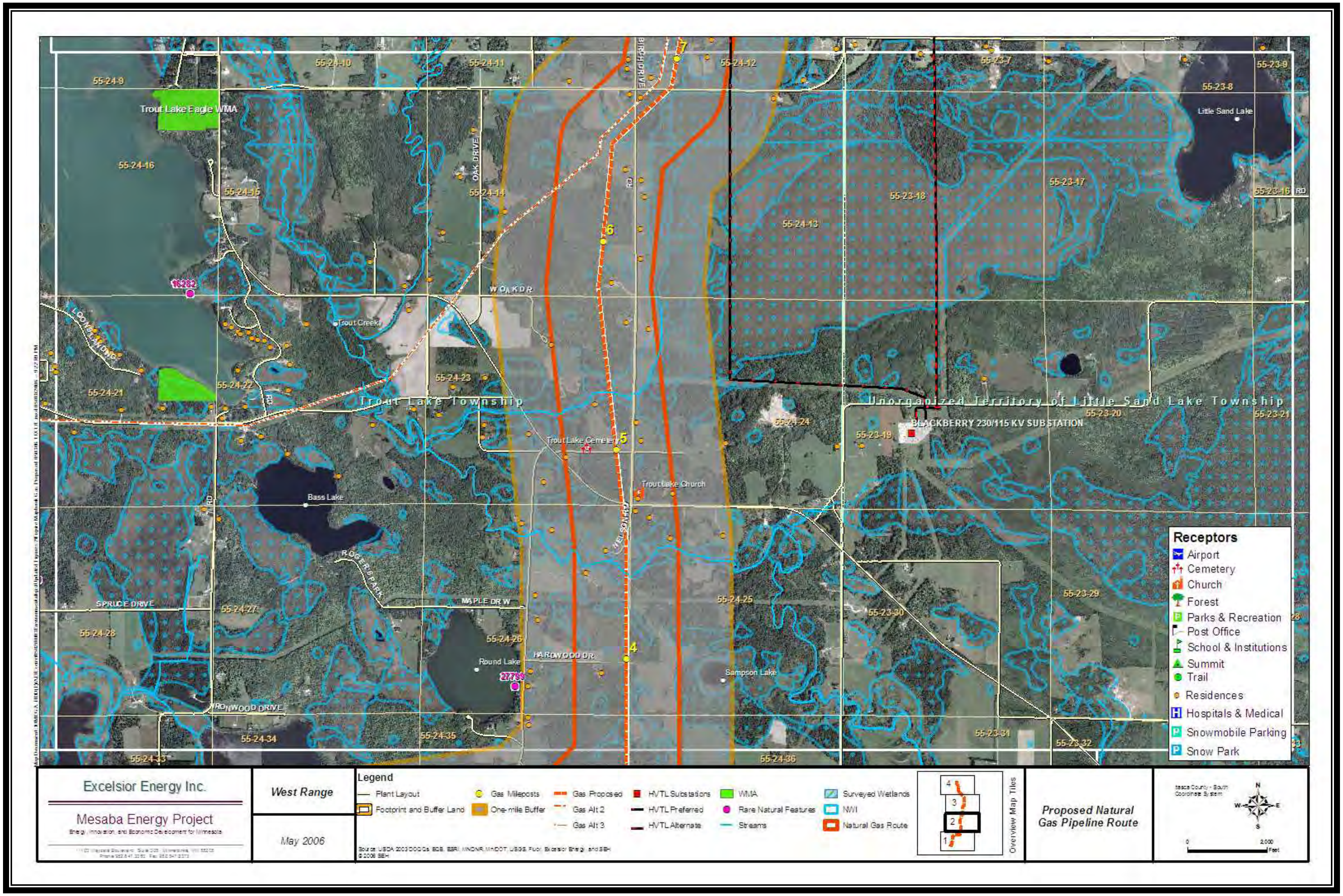


Figure 2.5-15 West Range Proposed Natural Gas Pipeline Route: Segment 3

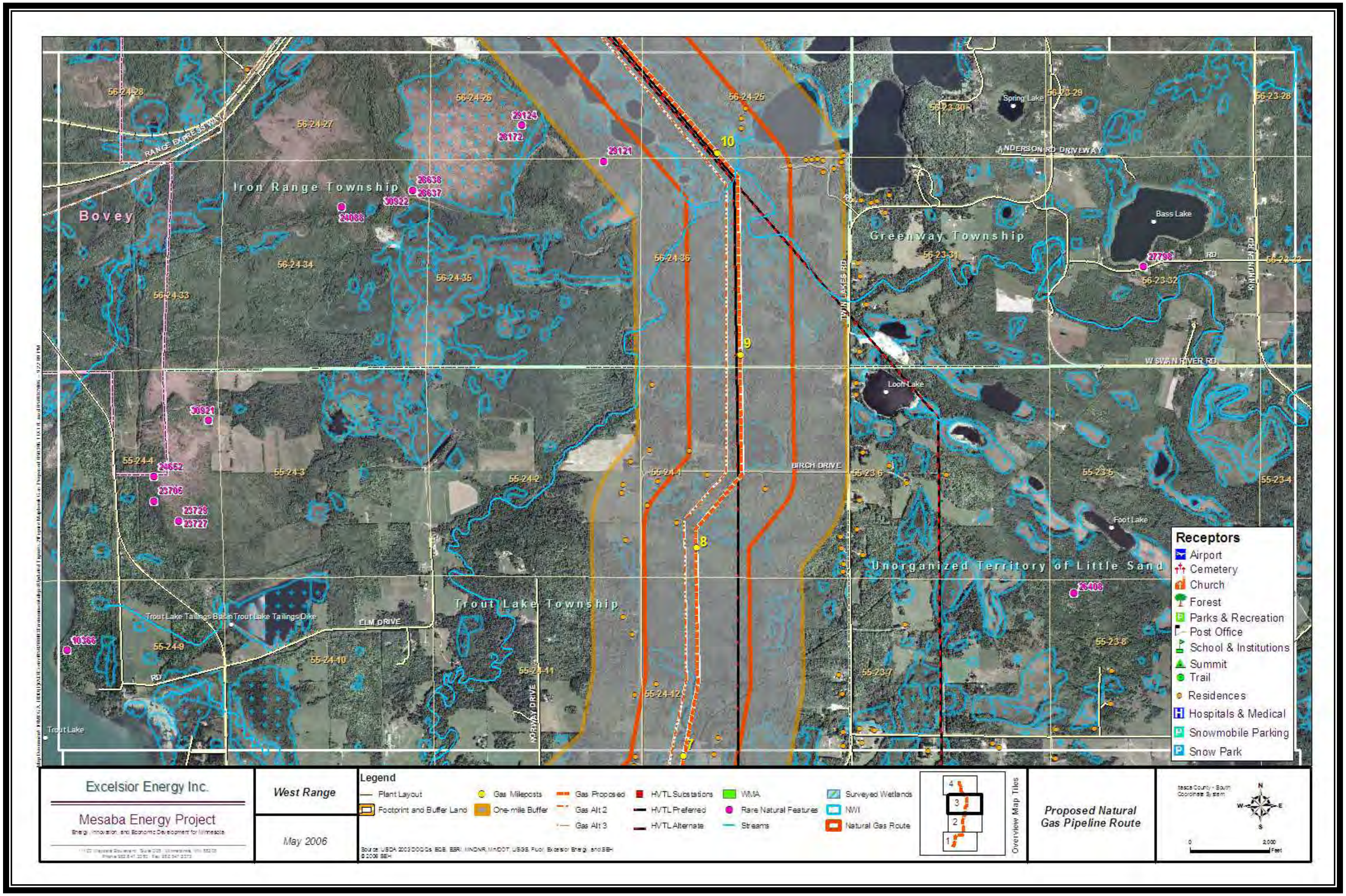


Figure 2.5-16 West Range Proposed Natural Gas Pipeline Route: Segment 4

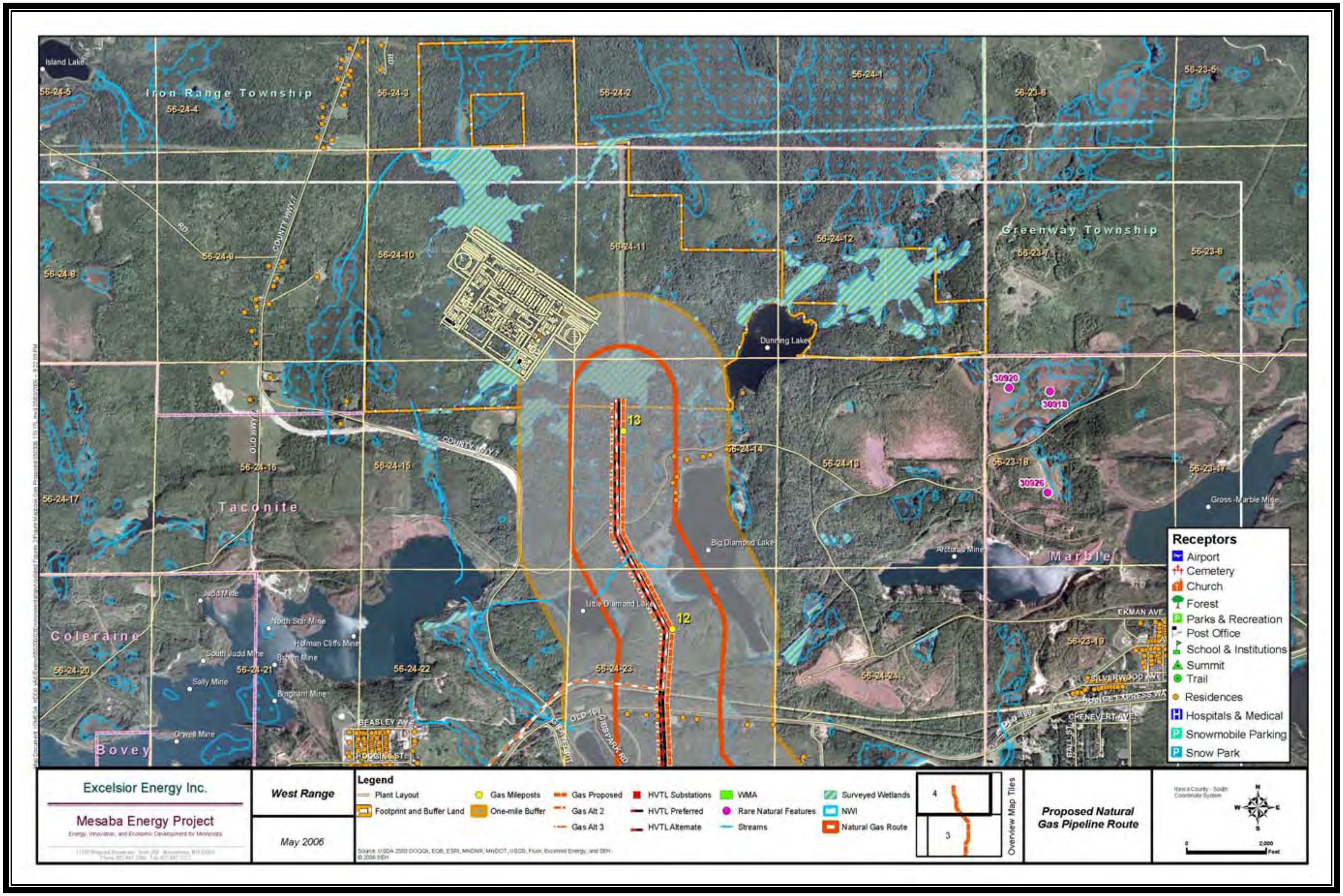


Figure 2.5-17 West Range Natural Gas Pipeline Route Milepost Map

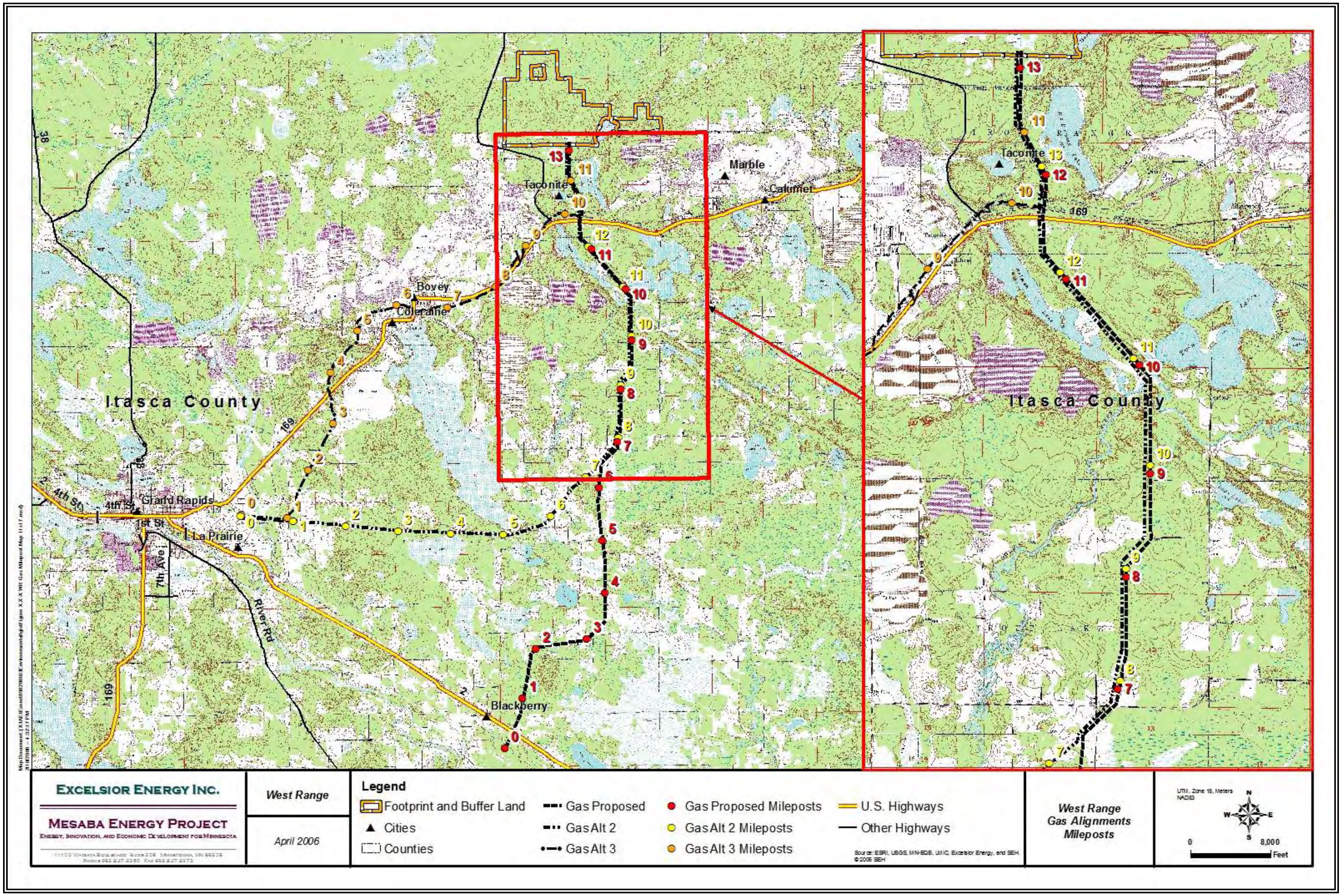


Figure 2.5-18 West Range Alternate Natural Gas Pipeline Route: NNG No.2, Segment 1

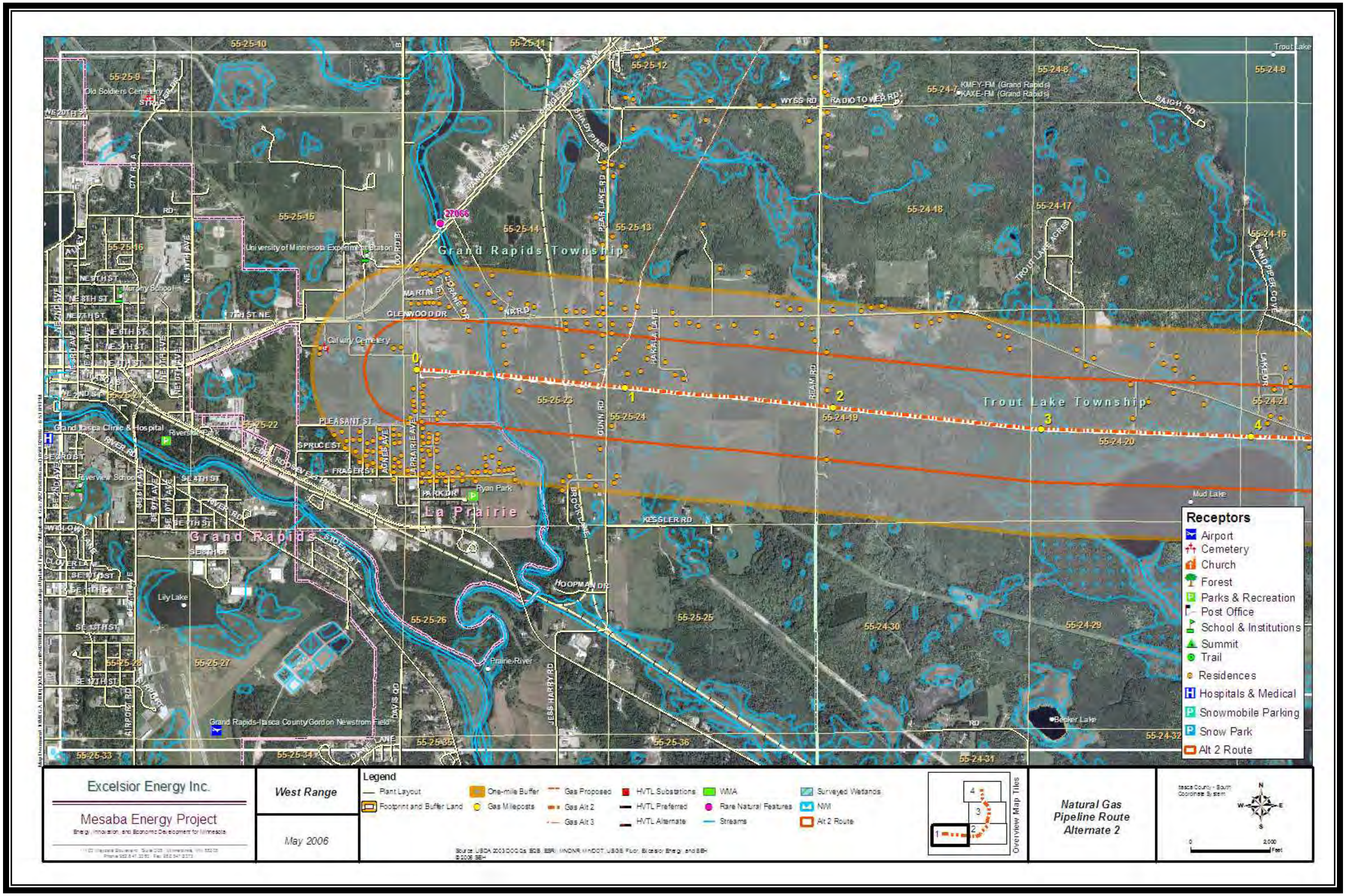


Figure 2.5-19 West Range Alternate Natural Gas Pipeline Route: NNG No.2, Segment 2

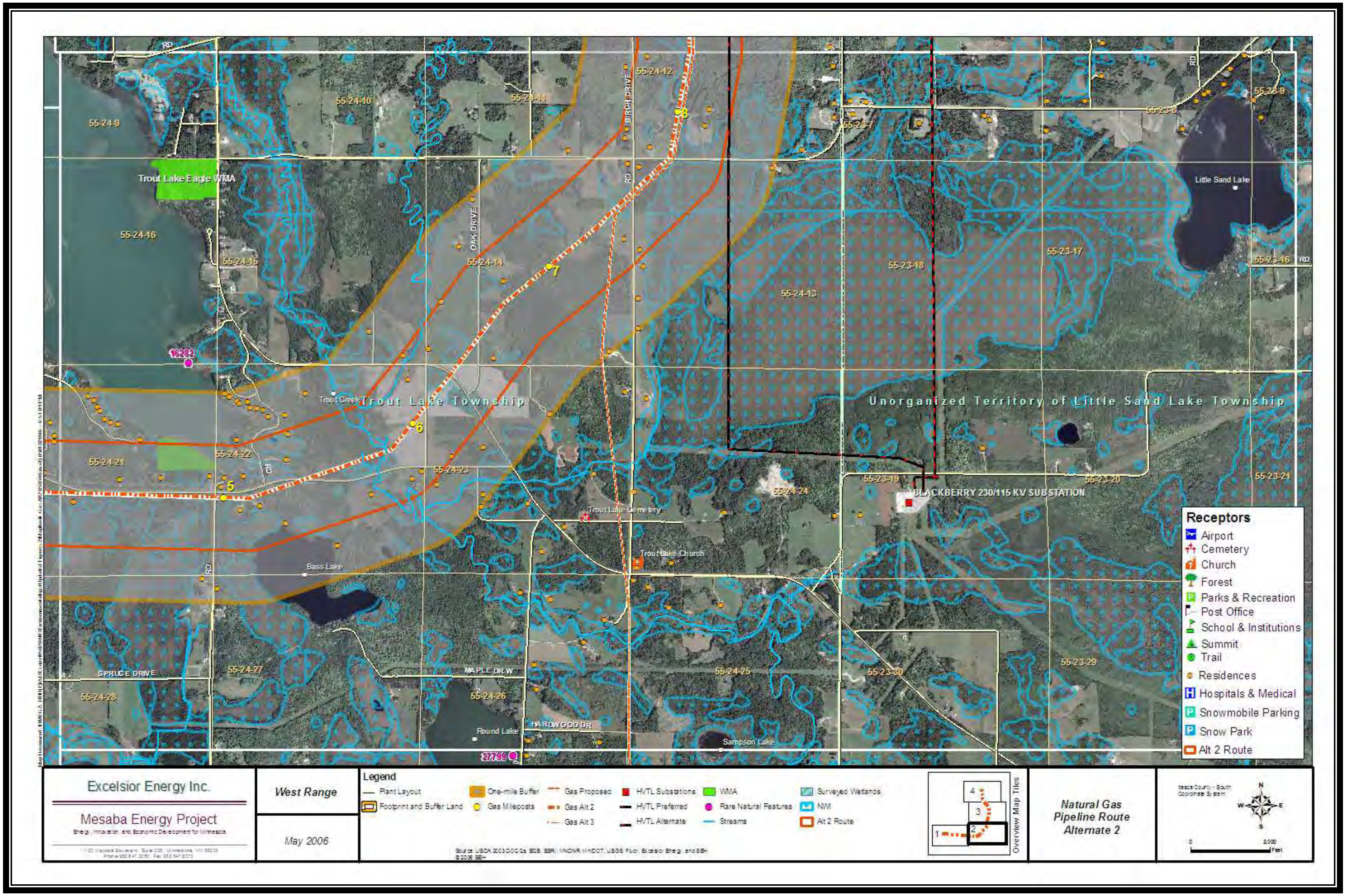


Figure 2.5-20 West Range Alternate Natural Gas Pipeline Route: NNG No.2, Segment 3

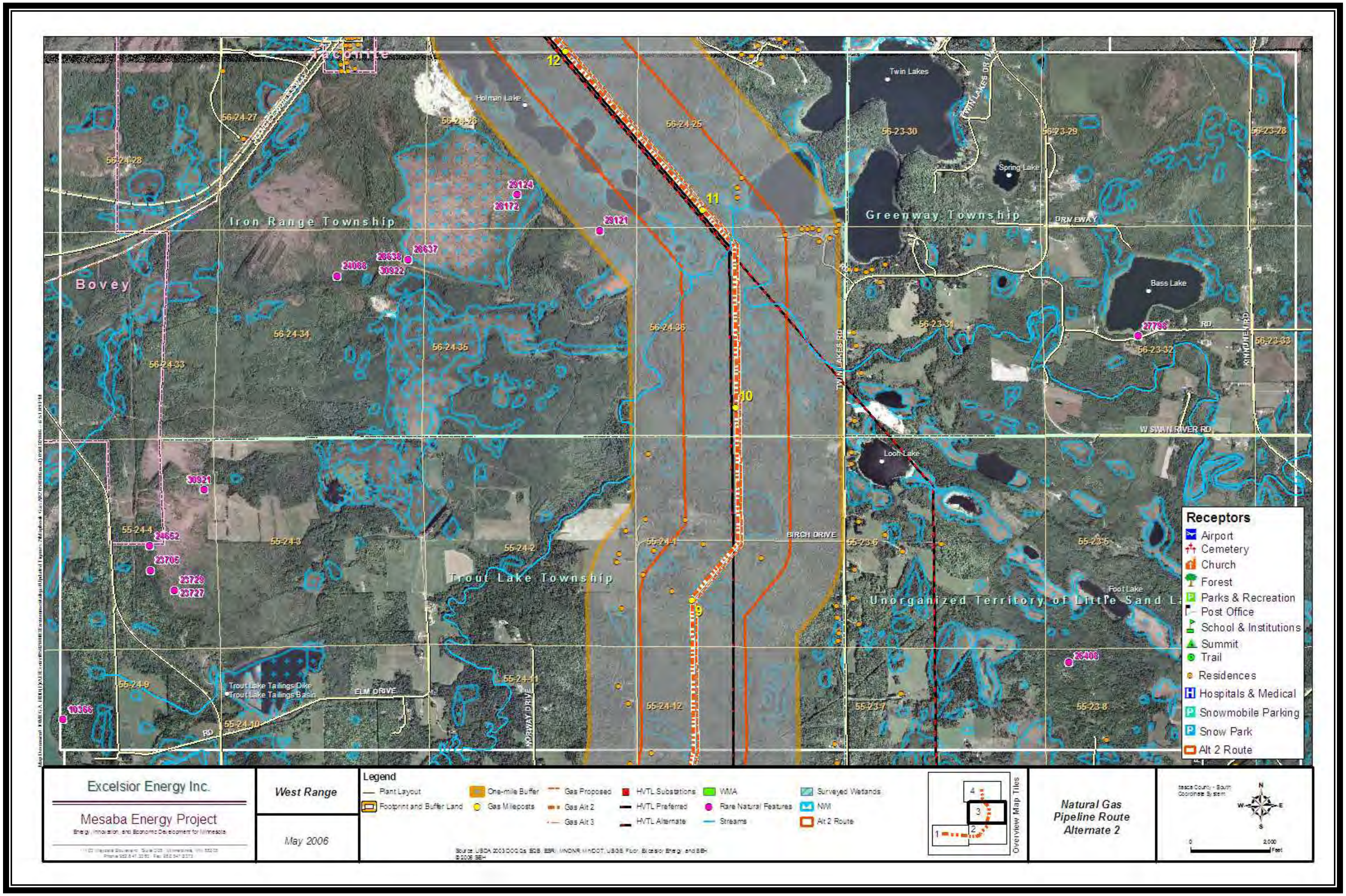


Figure 2.5-21 West Range Alternate Natural Gas Pipeline Route: NNG No.2, Segment 4

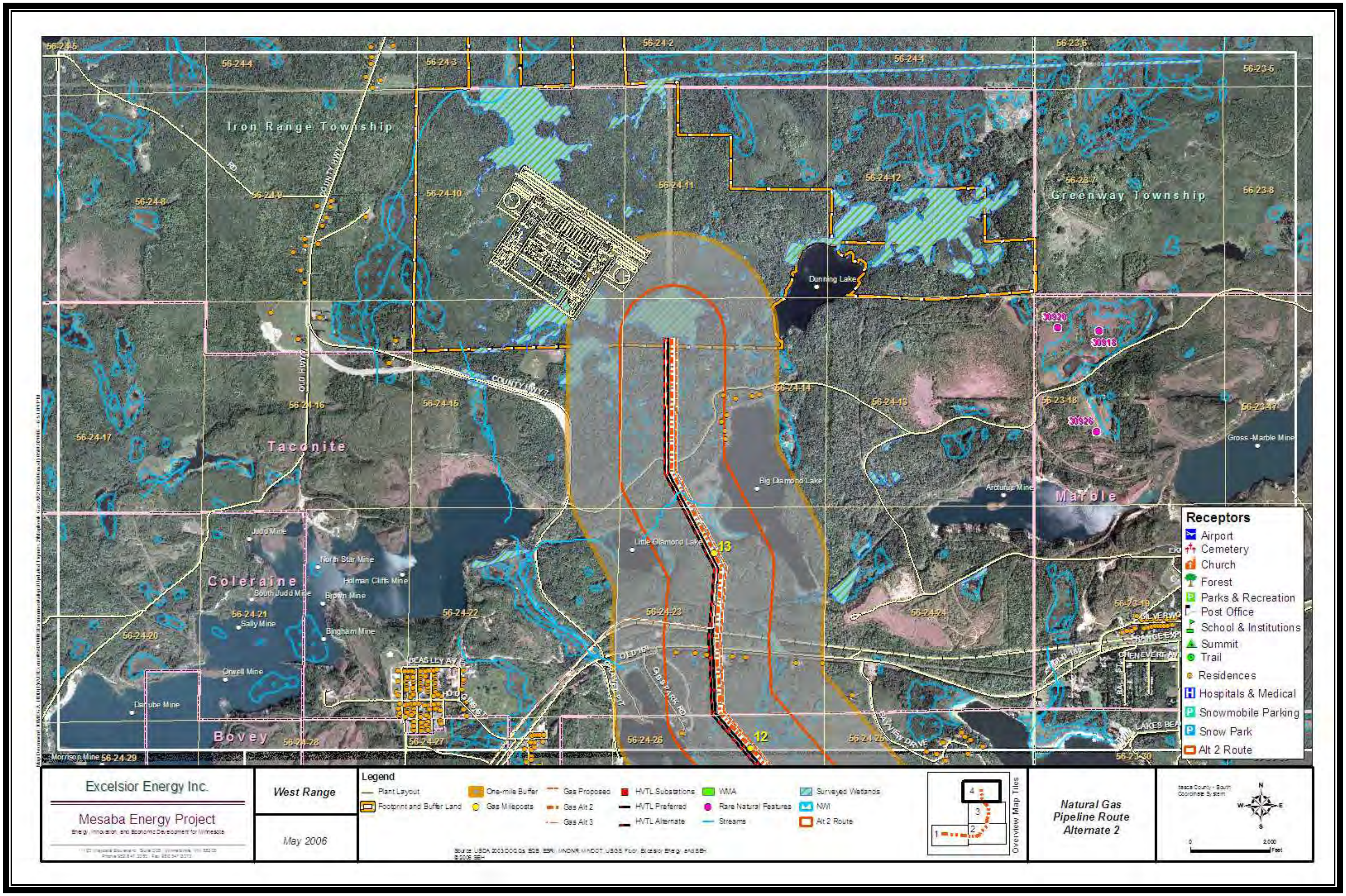


Figure 2.5-22 West Range Alternate Natural Gas Pipeline Route: NNG No.3, Segment 1

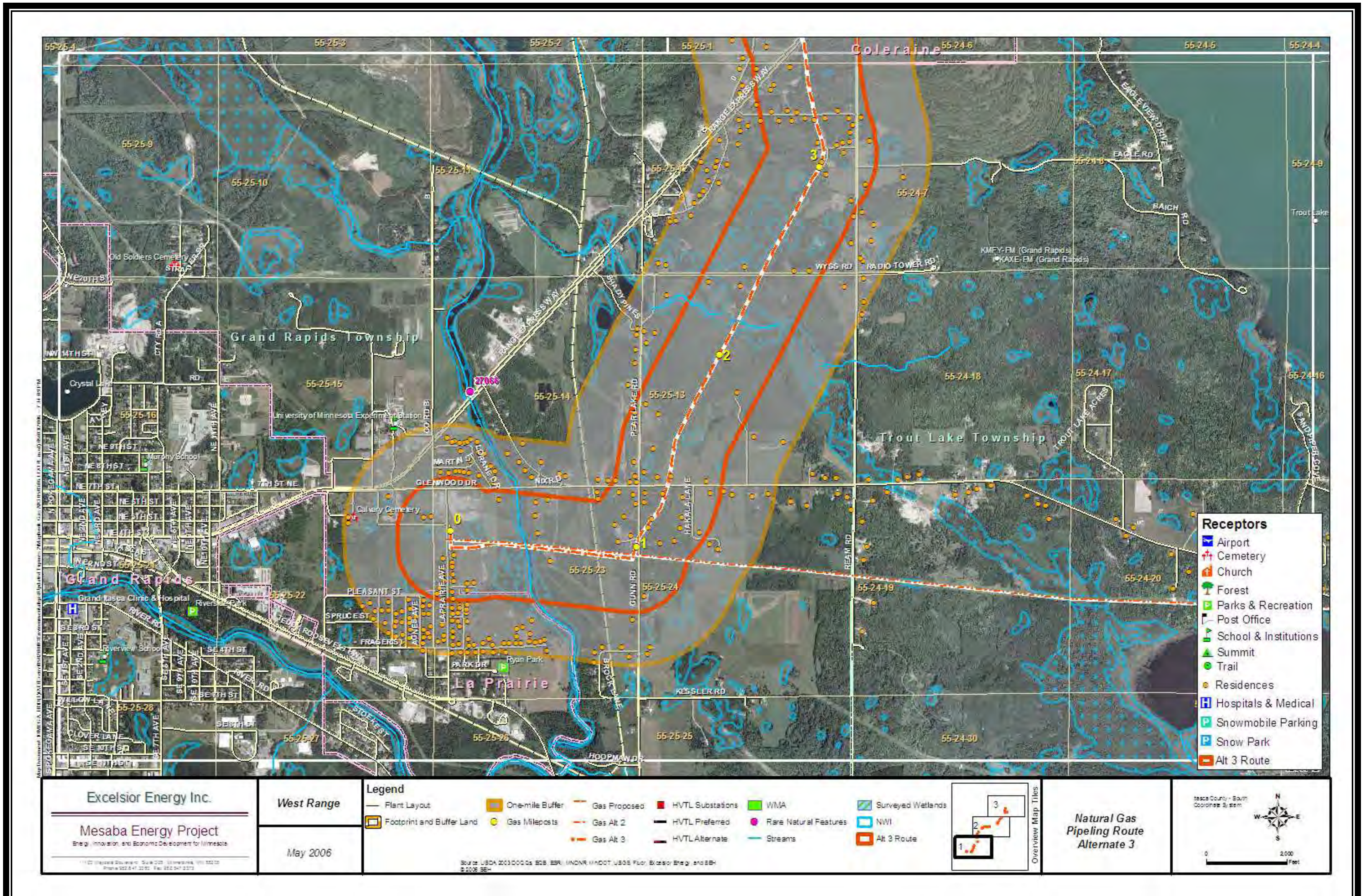


Figure 2.5-23 West Range Alternate Natural Gas Pipeline Route: NNG No.3, Segment 2

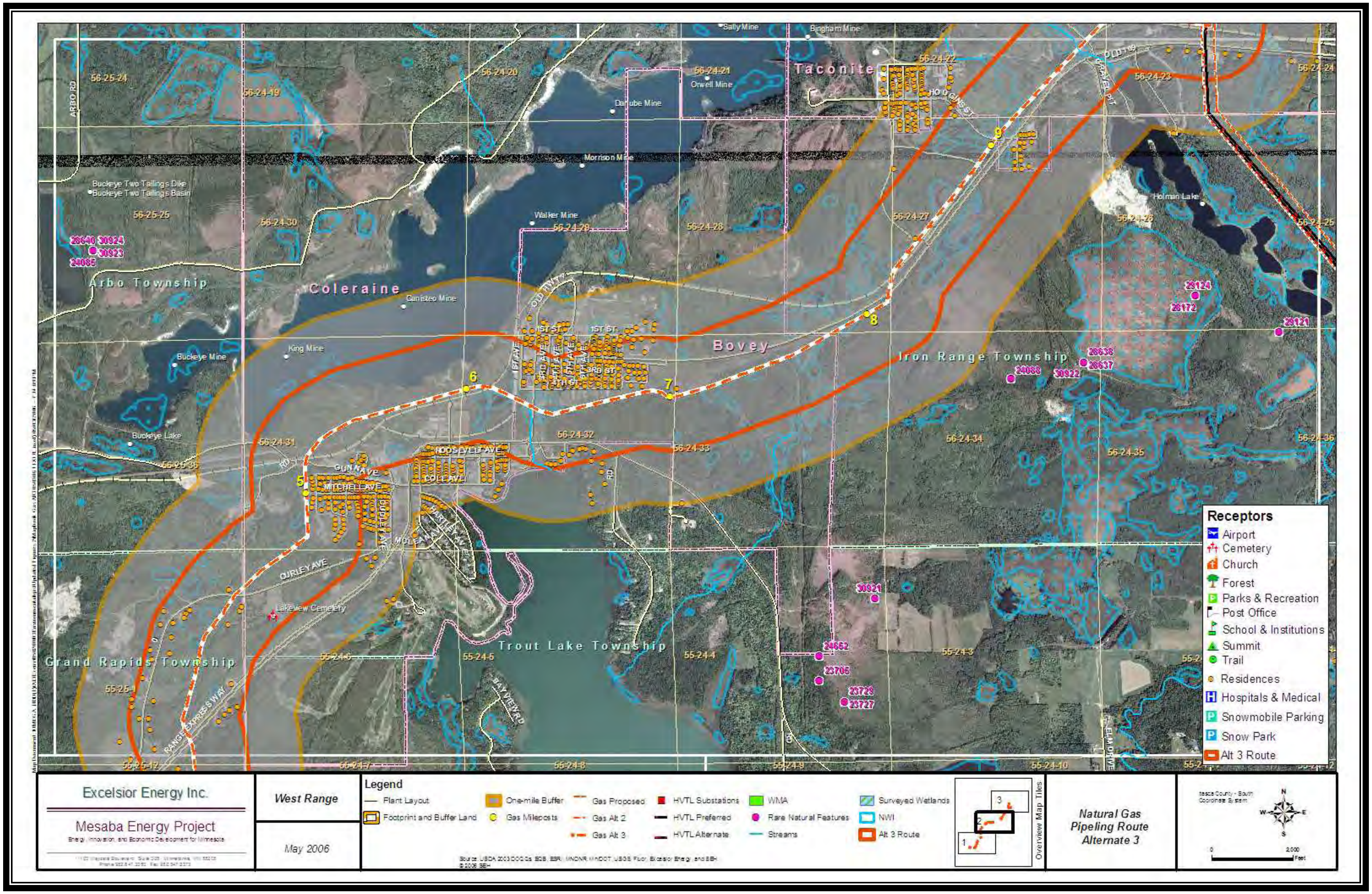
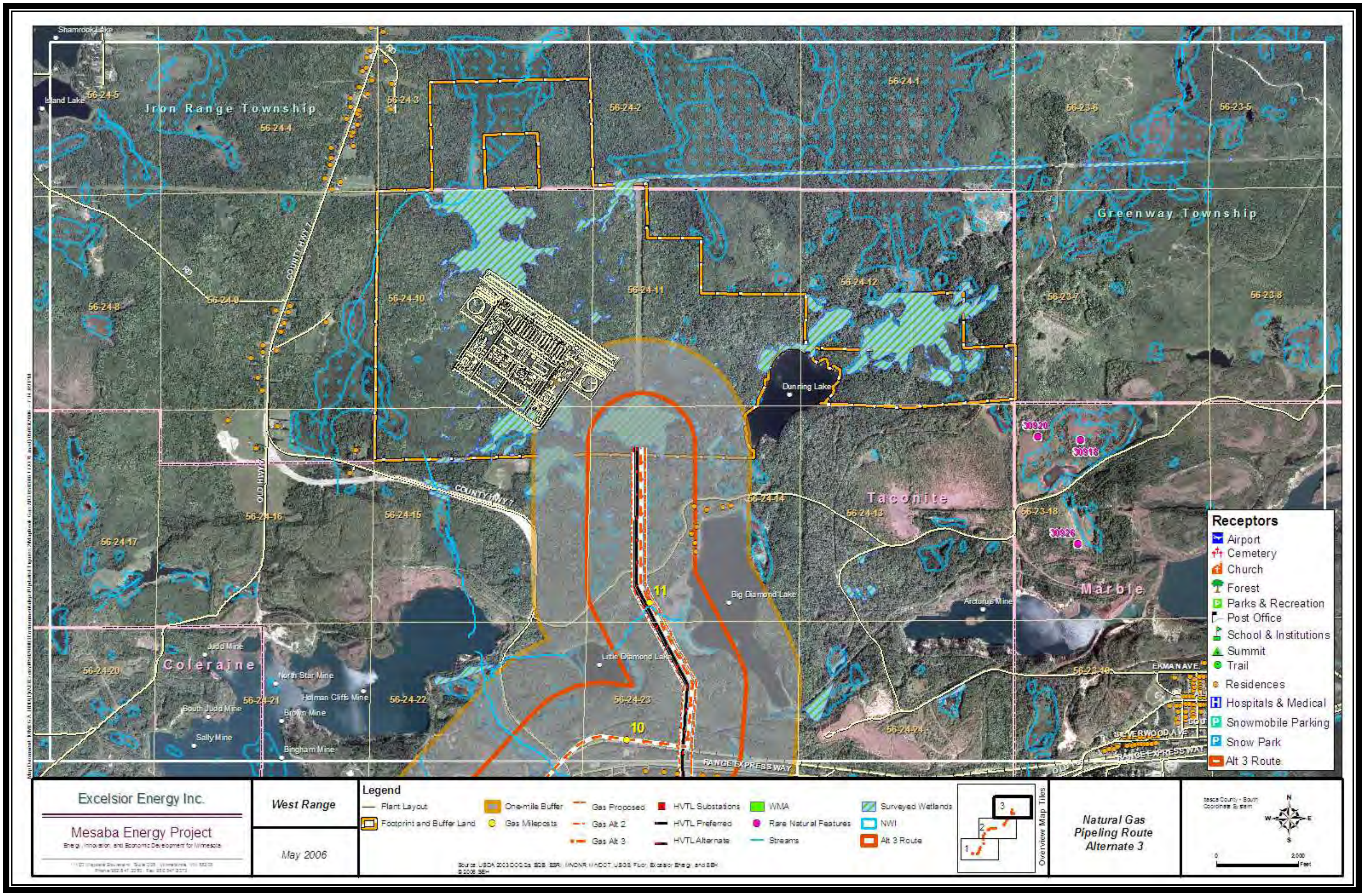


Figure 2.5-24 West Range Alternate Natural Gas Pipeline Route: NNG No.3, Segment 3



2.6 ALTERNATE SITE – EAST RANGE

The alternate site for Mesaba One and Mesaba Two is the East Range Site. This section describes the IGCC Power Station Footprint, Buffer Land, the Associated Facilities, and the Additional Lands that comprise the East Range Site.

2.6.1 IGCC Power Station Footprint and Buffer Land

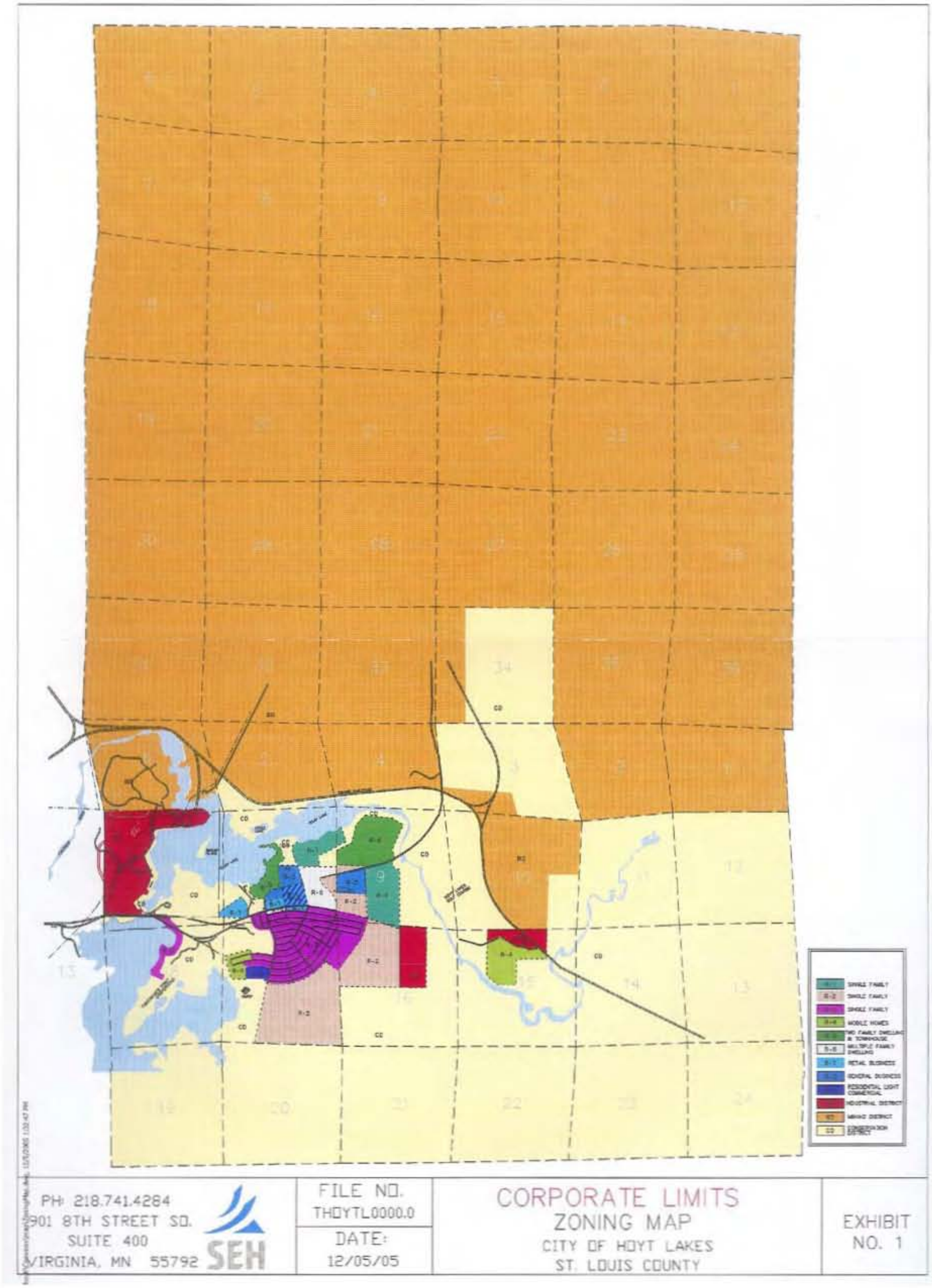
The East Range IGCC Power Station Footprint and Buffer Land shown in Figures 2.1-4 and 2.1-5 comprise approximately 810 acres of undeveloped property located completely within the city limits of Hoyt Lakes, Minnesota. The Station Footprint and Buffer Land are located within Township 59N, Range 14W and are generally bounded by CR 666 to the east and the Superior National Forest boundary to the north. A wetland area found in the southeastern part of the site drains via an unnamed creek to Colby Lake, and an existing 138kV HVTL corridor leading to MP's Syl Laskin Energy Center Substation ("Laskin Substation") runs along the Site's western boundary.

The IGCC Power Station Footprint and Buffer Land is currently owned by Cliffs-Erie, LLC (CE) and is zoned MD (mineral mining district) to support mining operations that historically took place within the immediate vicinity of the Site. The purpose of the MD district is to "identify areas of existing and potential mineral mining, processing, storage and loading, tailings and waste disposal, and accessory and support activities required for proper operation of mining activities located outside of the limits of the open pit and ore formation, and to assure the compatibility of these uses to other uses within the City of Hoyt Lakes." The current Hoyt Lakes zoning map is provided in Figure 2.6-1. The Station Footprint and Buffer Land are currently unoccupied, but have direct access to CR 666 and include a private, unpaved road used by CE to access its pump house on Colby Lake. A Canadian National (CN) railroad line is located about one-half mile south of the site.

Land uses within the IGCC Power Station Footprint and Buffer Land are natural, exhibiting no structures or other major land use conversions. Upland forests occur on the north, west and east sides of the East Range Site. All of the East Range uplands are vegetated with northern mesic mixed forest – aspen birch forest (balsam fir subtype) as described in the "Field Guide to Native Plant Communities in Minnesota: The Laurentian Mixed Forest Province" (MDNR, 2003). Within the past year, a sizable portion of the site's upland forest cover has been harvested for timber production. The remaining forest cover is relatively young, with such lands having also been harvested within the past 25 years. There is no old growth forest cover within the IGCC Power Station Footprint and Buffer Land. The upland forest composition and character demonstrates that the area has served as a timber source and been impacted by timber production for several decades. The site topography of the upland portion of the Buffer Lane generally varies between 1,490-1,525 feet above mean sea level ("ft MSL"). A small but relatively pronounced hill approximately 15 acres in size and located immediately north of the unnamed creek and about 2,000 feet from CR 666, rises to about 1,550 ft MSL. The 2003 aerial photograph in Figure 2.6-2 shows the following notable terrain features:

- A large waste rock pile approximately 300 acres in size (resulting from placement of overburden materials excavated as part of past mining operations) is located immediately

Figure 2.6-1 Hoyt Lakes Zoning Map



west of the site, and quickly rises in elevation about 80-100 feet above the ground surface of the Station Footprint.

- A 20-40 foot drop in elevation on the southeastern part of the site to a large wetland area.

There are no lakes, major bedrock outcrops, unique ecological resources, or other natural features within the area occupied by the Station Footprint and Buffer Land. Figure 2.1-5 shows the orientation of the IGCC Power Station Footprint, the Buffer Land and the infrastructure required for the Station's operations. The layout of the IGCC Power Station for the East Range Site differs from that presented for the West Range Site with respect to its orientation, rail approach, rotary dumper location, and access road configuration. The equipment layout plan within the Station Footprint is shown in detail in Figure 3.2-1.

Some wetlands on the IGCC Power Station Footprint and Buffer Land would be impacted by the Phase I and II Developments. Information on the environmental sitting and potential impacts from Mesaba One and Mesaba Two are discussed in detail in Section 8 and in Sections 2 and 3 of the ES.

2.6.2 Associated Facilities

Easements across public and private lands would be required for the Associated Facilities. Figures 2.1-4 and 2.1-5 show the location of the Associated Facilities on the East Range Site. Environmentally relevant details of the Associated Facilities required for the construction, maintenance, and operation of Mesaba One and Mesaba Two are presented in Section 3. Information on the current environmental setting of the Associated Facilities' corridors and the potential environmental impacts that would result from Mesaba One and Mesaba Two are discussed in Section 8. HVTL routes associated with the East Range Site are described below in Section 2.6.3 and the East Range Proposed Natural Gas Pipeline Route is discussed in Section 2.6.4.

2.6.3 HVTL Routes

The Applicant has investigated alternatives for the HVTL GOs for Mesaba One and Two at the East Range Site. As a result of this analysis, 345kV HVTLs have been selected for the East Range generator outlet facilities. In this approach, two unstaggered GO HVTLs are required to provide the necessary route diversity required by the (n-1) single failure criterion (see Section 2.2.1). The development of alternative transmission configurations to meet the Phase I and II IGCC Power Station outlet needs is discussed in the ES.

Three existing transmission lines emanate from the Syl Laskin Energy Center ("Laskin"), located approximately two miles southwest of the Station Footprint, and connect with the Forbes and Virginia Substations. Figure 2.6-3 shows the three 115kV lines that connect the Laskin Substation (34L, 38L, and 39L) with these substations. All three of these lines are candidates for replacement with new double circuit structures to carry the IGCC Power Station's GO HVTLs and the existing 115kV HVTLs.

Figure 2.6-4 is a milepost map showing the East Range Preferred and Alternate HVTL Routes for interconnecting Mesaba One and Two to the Forbes Substation POI. Significant receptors along each route are shown in Figure 2.6-5.

Figure 2.6-2 Topography of East Range IGCC Power Station Footprint and Buffer Land

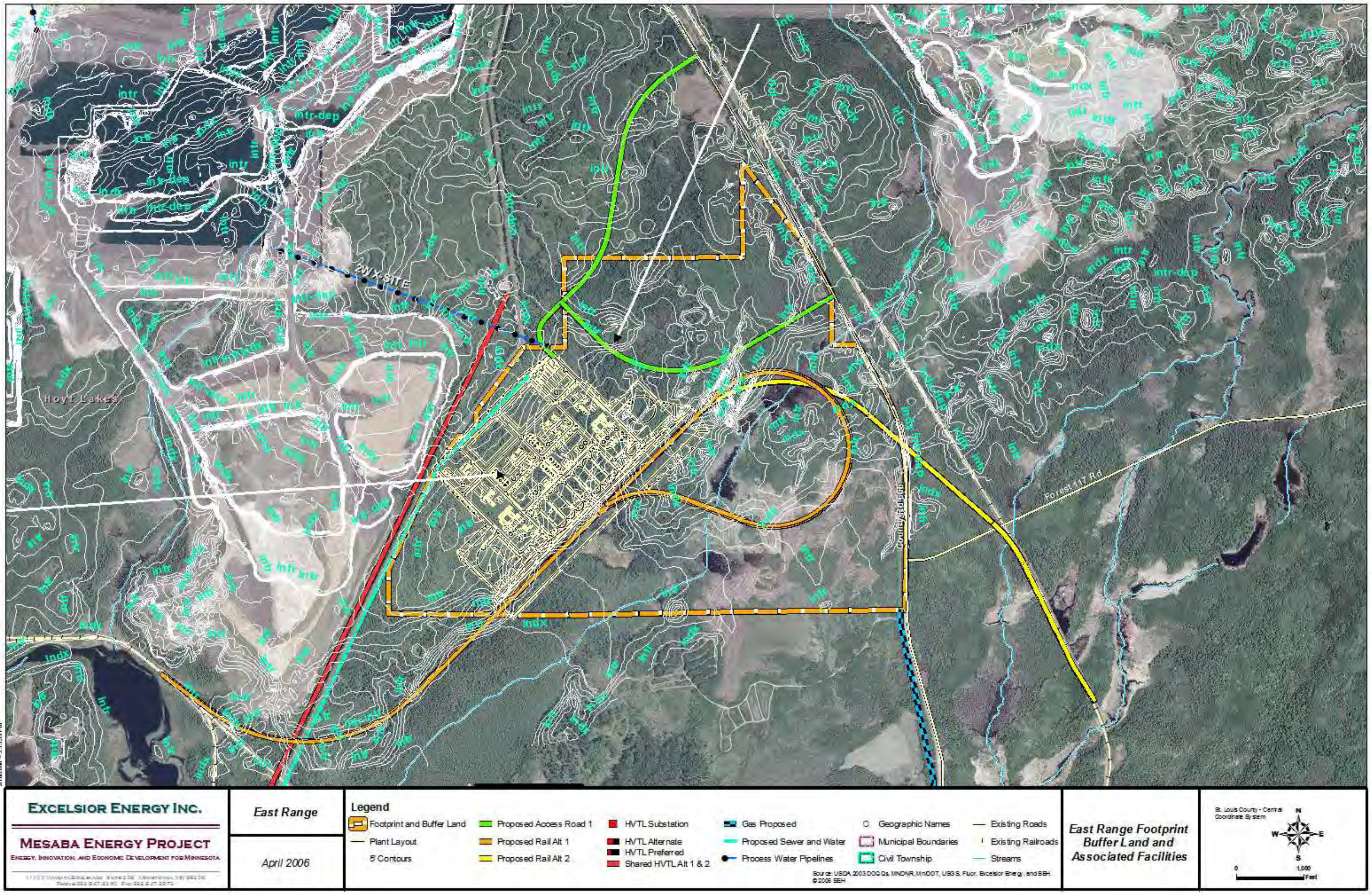


Figure 2.6-3 Existing HVTL Corridors Between the East Range Site and the Forbes Substation

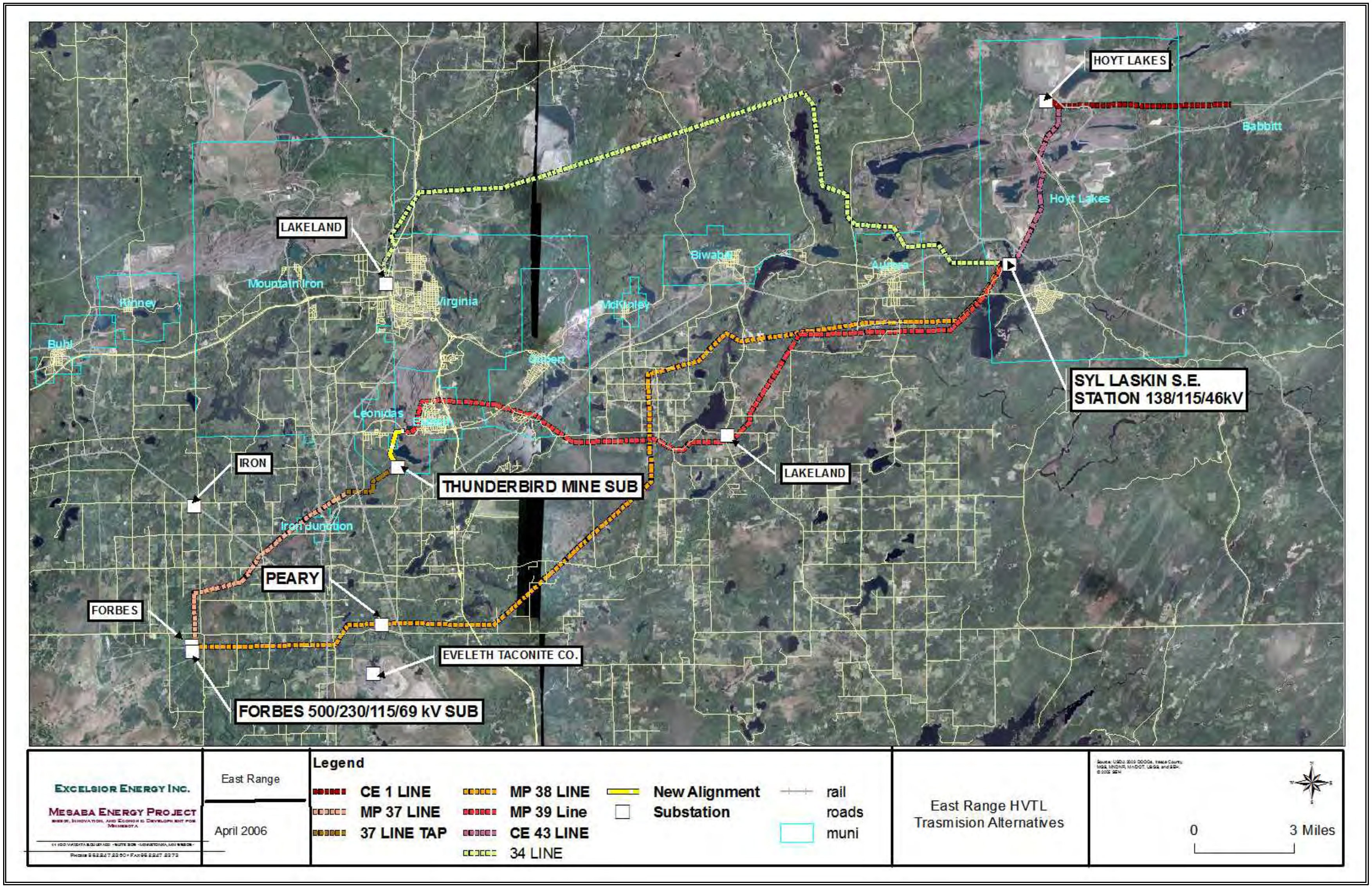


Figure 2.6-4 East Range Preferred and Alternate HVTL Routes and Proposed Natural Gas Pipeline Route with Milepost Indicators

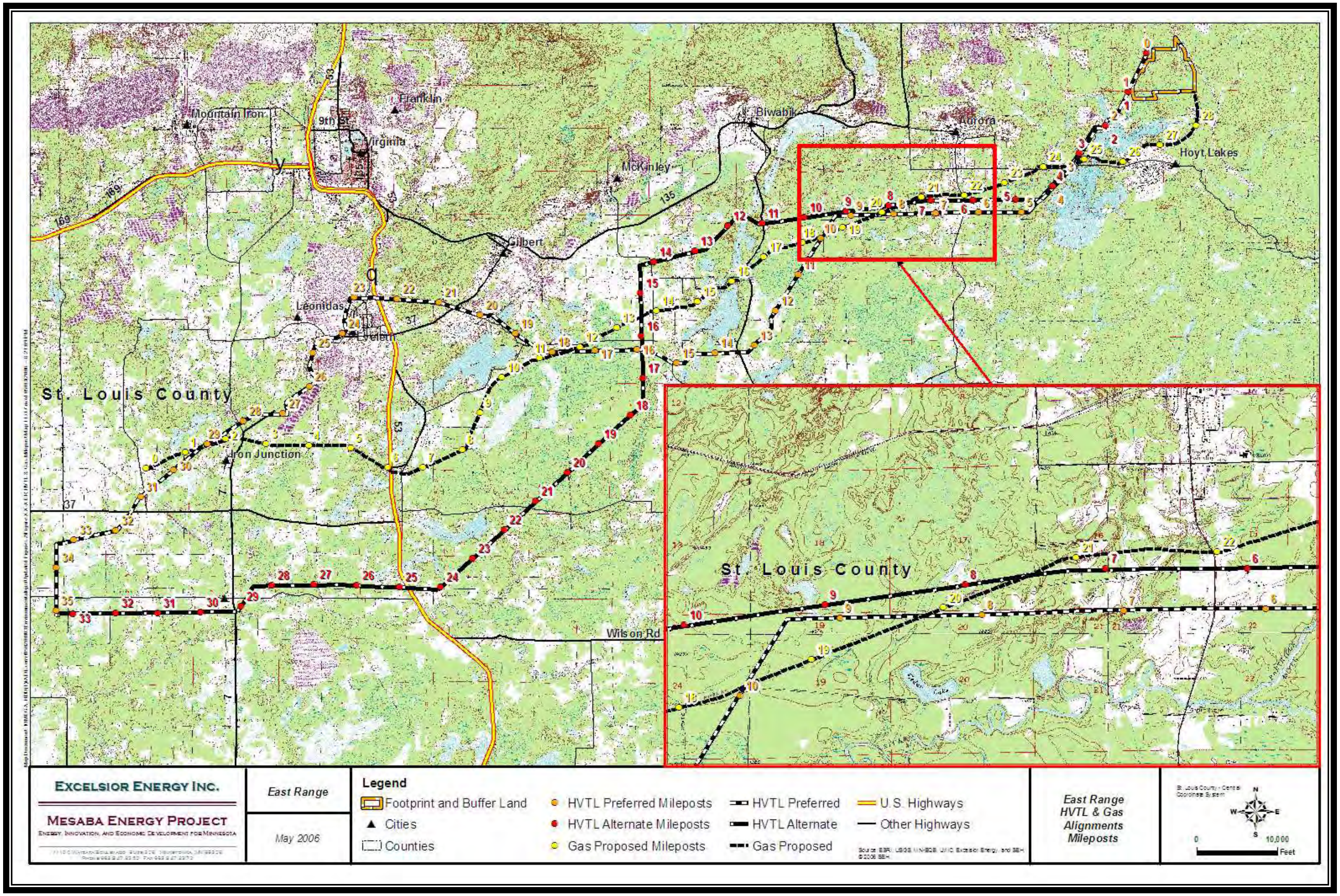
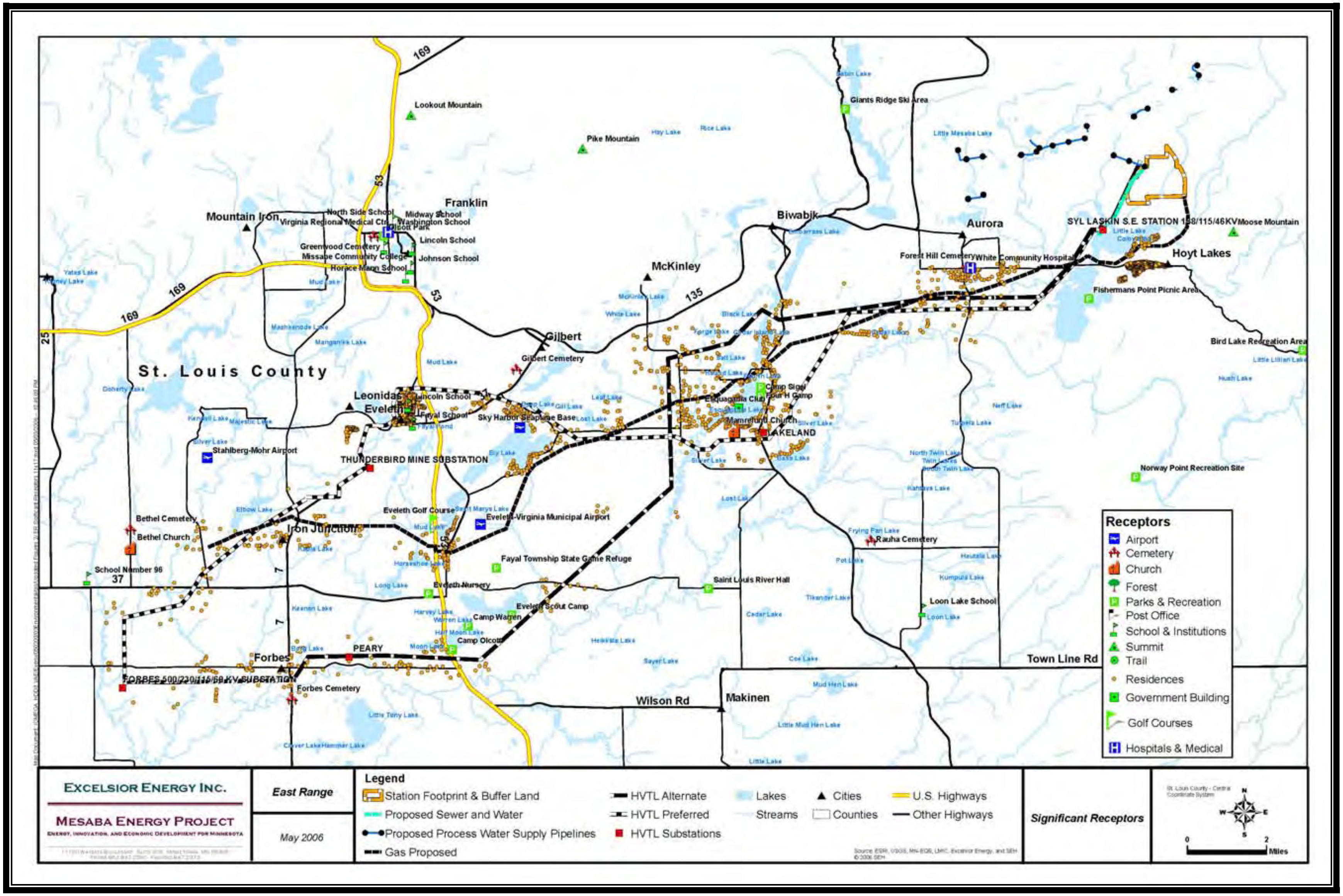


Figure 2.6-5 Significant Receptors Along the East Range Preferred and Alternate HVTL Routes and the Proposed Natural Gas Pipeline Route



The 38L interconnects directly to the Forbes Substation, is about 33 miles in length, is rated at 149 MVA[4], and has one intermediate distribution load service substation (the Peary Substation) to maintain service during potential reconstruction. For the 39L and 34L routes that connect to the Virginia Substation, there are existing 115kV lines (37L direct to the Forbes Substation and 16L/18L to the Forbes Substation via United Taconite) that could be reconstructed as double circuits to support the direct routing of the GO HVTLs to the Forbes Substation. The lengths of the GO lines utilizing these routes are 35.5 miles on the 39L/37L route and 39 miles on the 34L/16L/18L route. The possibility of routing the 34L into the Virginia Substation using existing HVTL routes is not deemed to be a practical alternative given the present spatial constraints that arise from too many HVTLs converging into a narrow corridor and the substation's limited potential to expand. Therefore, the most likely option for use of the 34L corridor is to re-route the corridor around the Virginia Substation. This would defeat the rationale for using existing corridors and, therefore, the Applicant limited the HVTL routes it considered to the 39L/37L and 38L options.

To minimize the impact of the IGCC Power Station on the already constrained 115kV transmission system between the Laskin Substation and the Forbes Substation, the Applicant would avoid removing either the 39L/34L or 38L HVTLs from service without providing a replacement HVTL option.

2.6.3.1 Preferred HVTL Route 2

The East Range Preferred HVTL plan includes the construction of two 345kV HVTLs in separate corridors. The first corridor emanates southwest from the Station Footprint past Laskin to the Forbes Substation, approximately 35.5 miles distant. This route follows the existing 39L/37L ROW along most of its length as shown in Figure 2.6-4. The first two miles of this route are on new ROW along 43L. The next 23.6 miles parallel with the existing 39L and in the form of a 345kV/115kV double circuit line carried on single pole structures shown in Figure 4.3-18.. The existing 39L 115kV HVTL would be moved to the new structures and comprise the 115kV circuit on the new line. The next 2 miles would carry a single 345kV circuit on new ROW connecting to 37L at the Thunderbird Mine Substation. From the Thunderbird Mine Substation and along the next 7.4 miles to the Forbes Substation, the line will parallel the existing 37L line and would be a 345kV/115kV double circuit line. The existing 37L line would be moved to the new structures and comprise the 115kV circuit on the new line. Figures 2.6-6 through Figures 2.6-12 show the 39L/37L route in a series of maps superimposed on aerial photos.

The second 345kV transmission outlet travels southwest from the Station Footprint past the Syl Laskin Energy Center to the Forbes Substation, a distance of approximately 35.5 miles. The first two miles would parallel the first segment on new right-of-way along 43L and carry a single 345kV circuit. The remaining 31 miles parallel the 38L line and would be a 345kV/115kV double circuit line. The existing 38L line would be moved to the new structures and comprise the

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[4] Minnesota Power, 2003. "Navitas Energy Wind Generation, G-239 Impact Study," October 10, 2003, Generation Interconnection Request #37715-01.

115kV circuit on the new line. Figures 2.6-11 through 2.6-17 show the 38L route in a series of maps superimposed on aerial photos.

The sequence that would allow construction of the new lines without disrupting existing service will require that an additional 30 feet of ROW be acquired immediately adjacent to either the 39L/37L ROW or the 38L ROW. The design, configuration and construction sequencing of the proposed line is described in detail in Section 4. Information on the environmental setting the existing 39L/37L route and the potential environmental impacts of associated with acquiring an additional 30 feet along its entire length are discussed in Section 8.

2.6.3.2 Alternate HVTL Route 1

In accordance with Minn. Stat. §§ 116C.51 to 116C.69 of the Minnesota Power Plant Siting Act and Minn. R. 4400.1150 subps. 2C, at least one alternate route must be proposed if the HVTL exceeds 200kV, is five miles or greater in length, and less than 80 percent of the HVTL is located along existing HVTL rights of way (Minn. R. 4400.2000, subps. 1D and 1E). Although the applicant is thus not required to propose an alternative route because the preferred alternative is at least 80 percent located along an existing ROW, the Applicant, nonetheless, believes it is appropriate to propose an alternate route for consideration.

The East Range Alternate HVTL Route 1 configuration includes the same two corridors as the preferred rout configuration. The difference between the alternate and the preferred route configurations is the HVTL along which the Applicant will acquire the additional 30 feet of ROW. For Alternate Route 1, an additional 30 feet of ROW would be acquired along the complete length of the 38L. Information on the environmental setting of the existing 38L route and the potential environmental impacts associated with acquiring an additional 30 feet of ROW are discussed in Section 8.

Figure 2.6-6 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 1

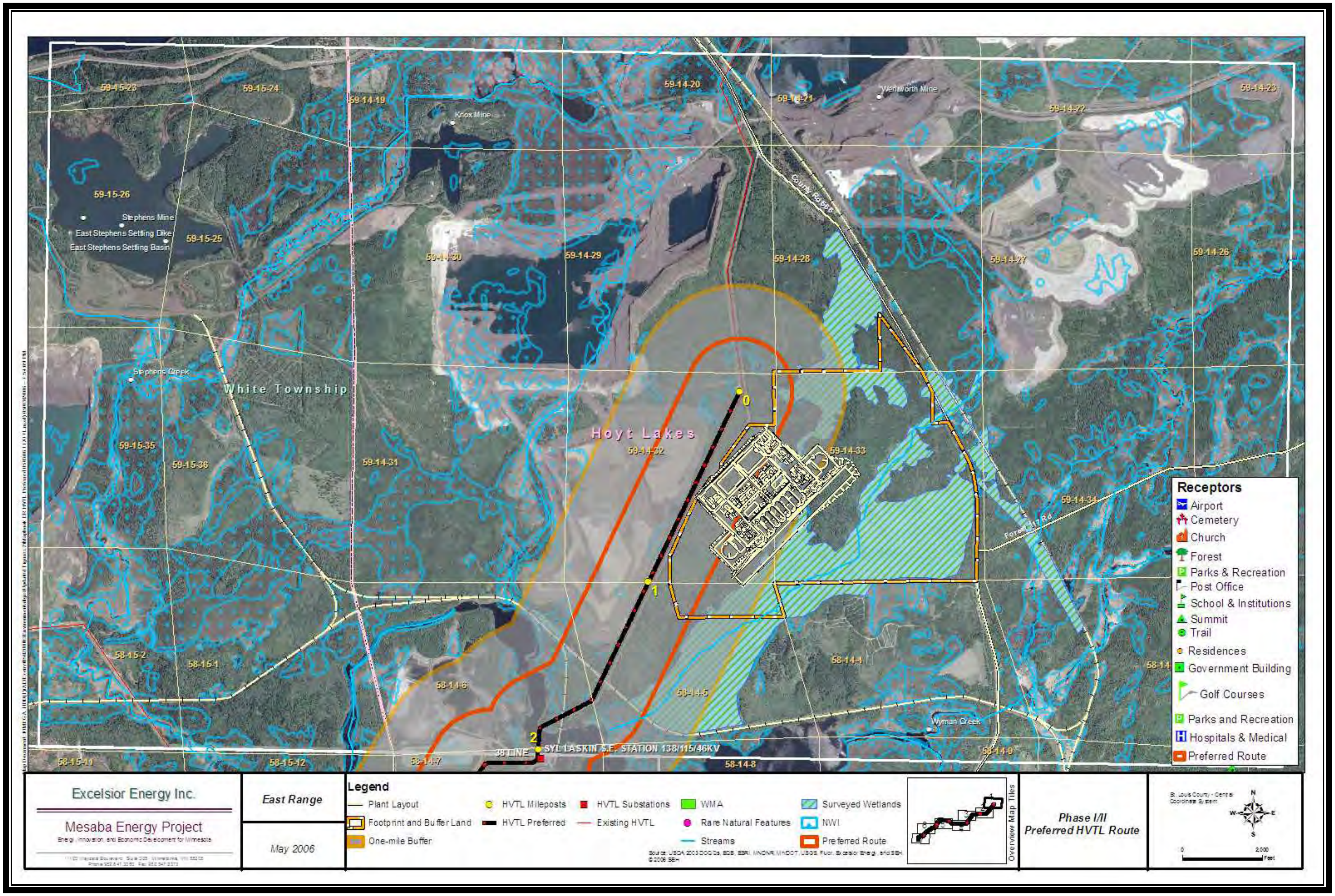

Figure 2.6-7 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 2

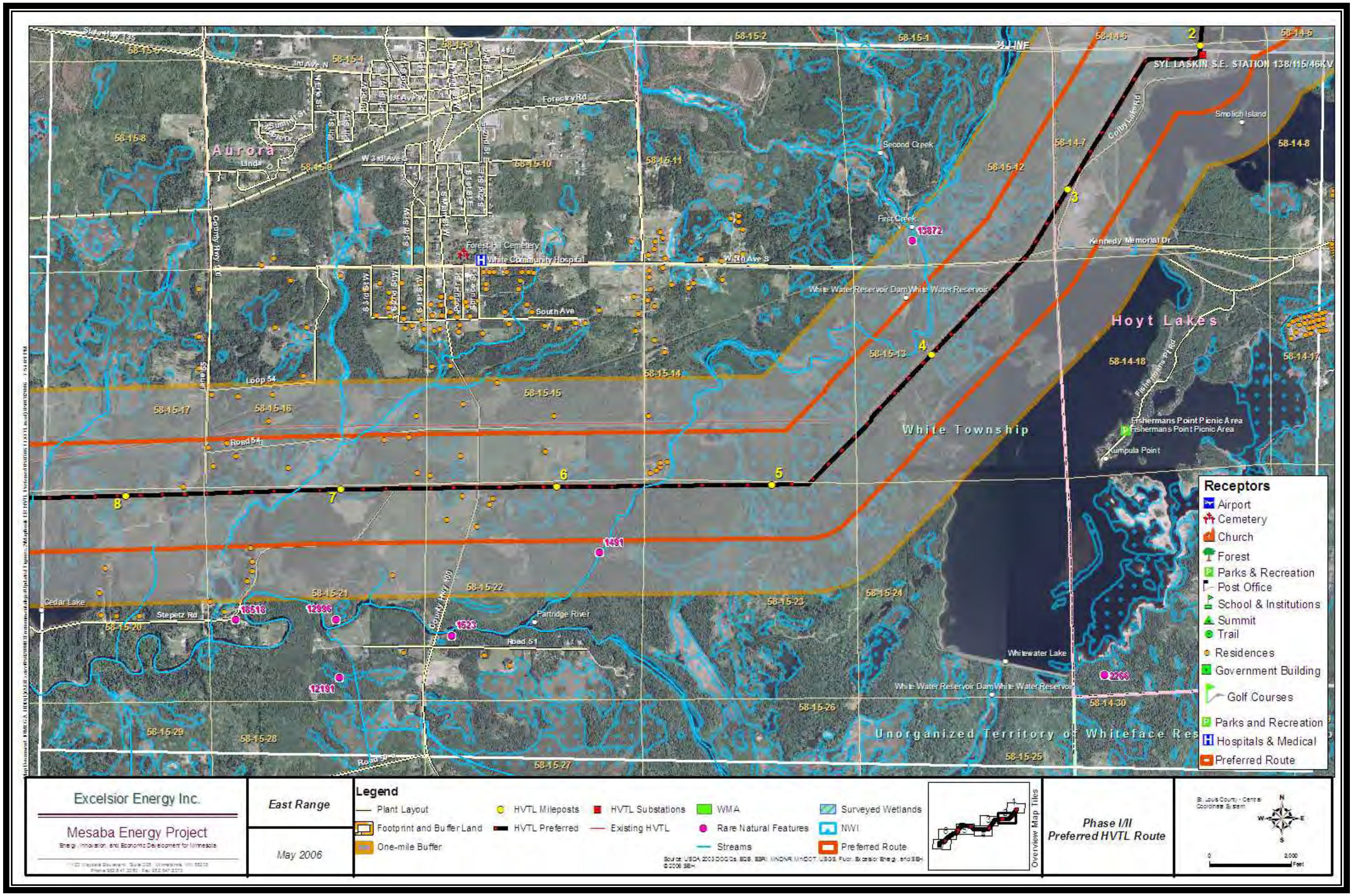

Figure 2.6-8 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 3

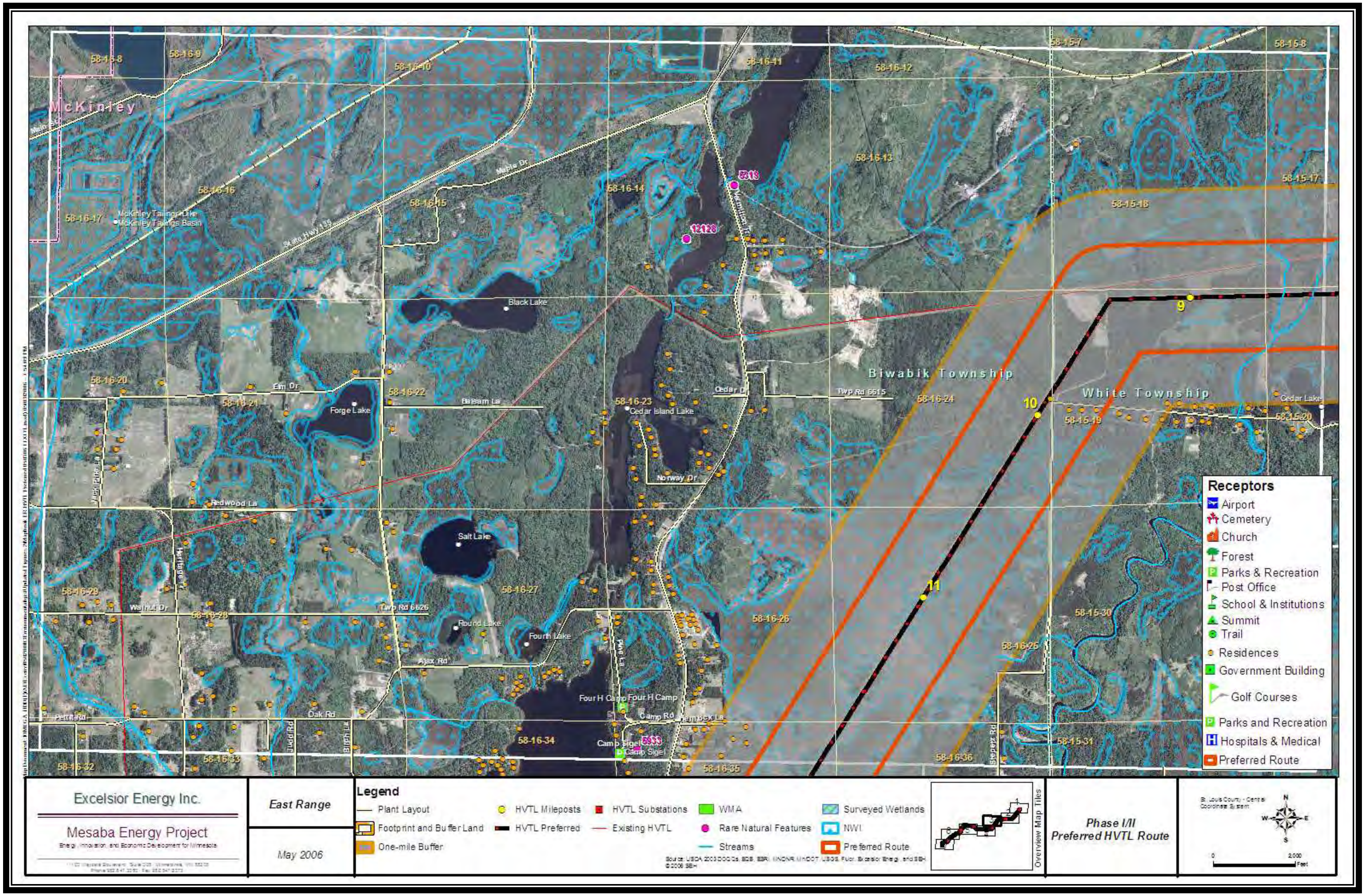

Figure 2.6-9 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 4

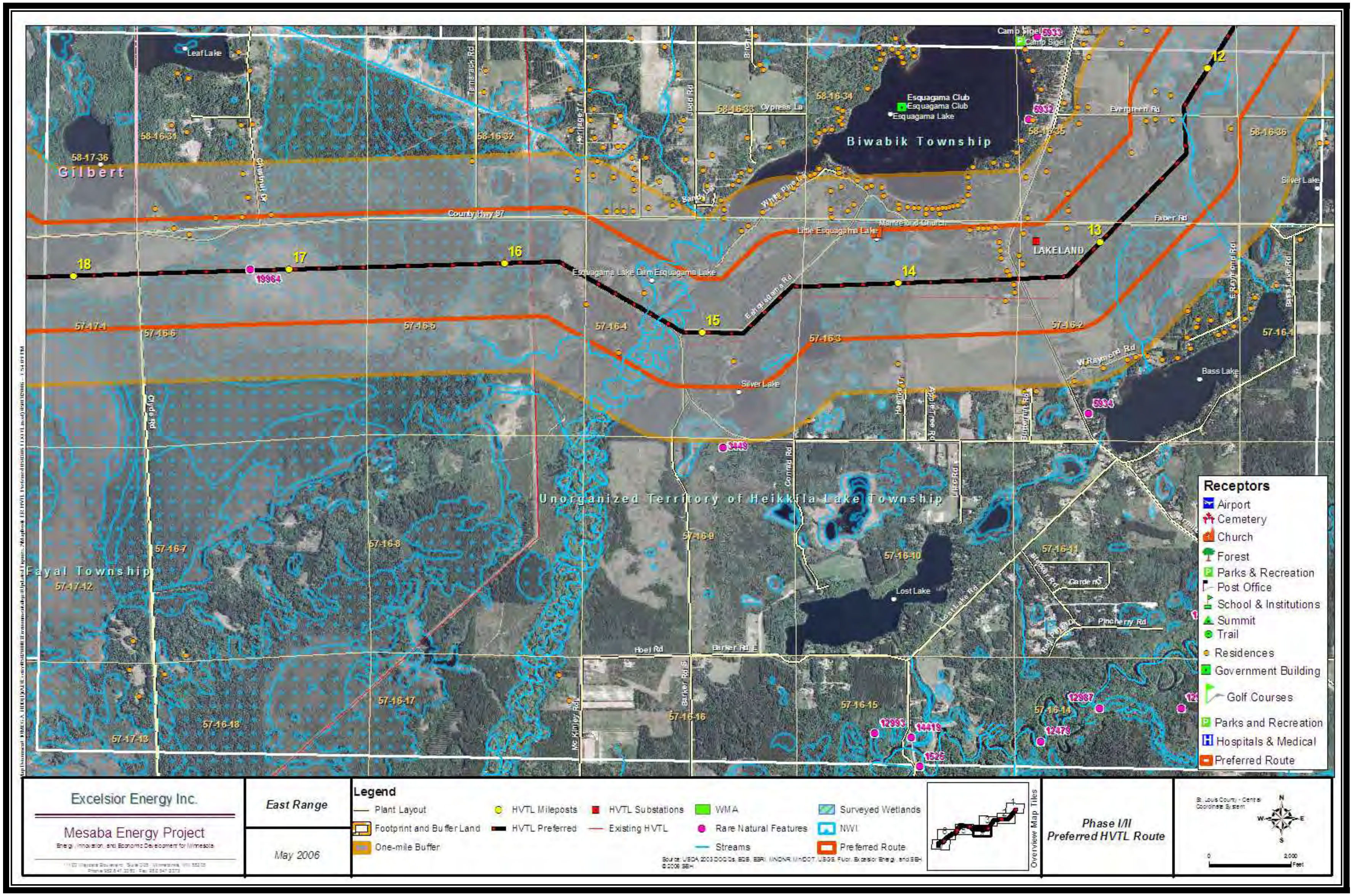

Figure 2.6-10 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 5

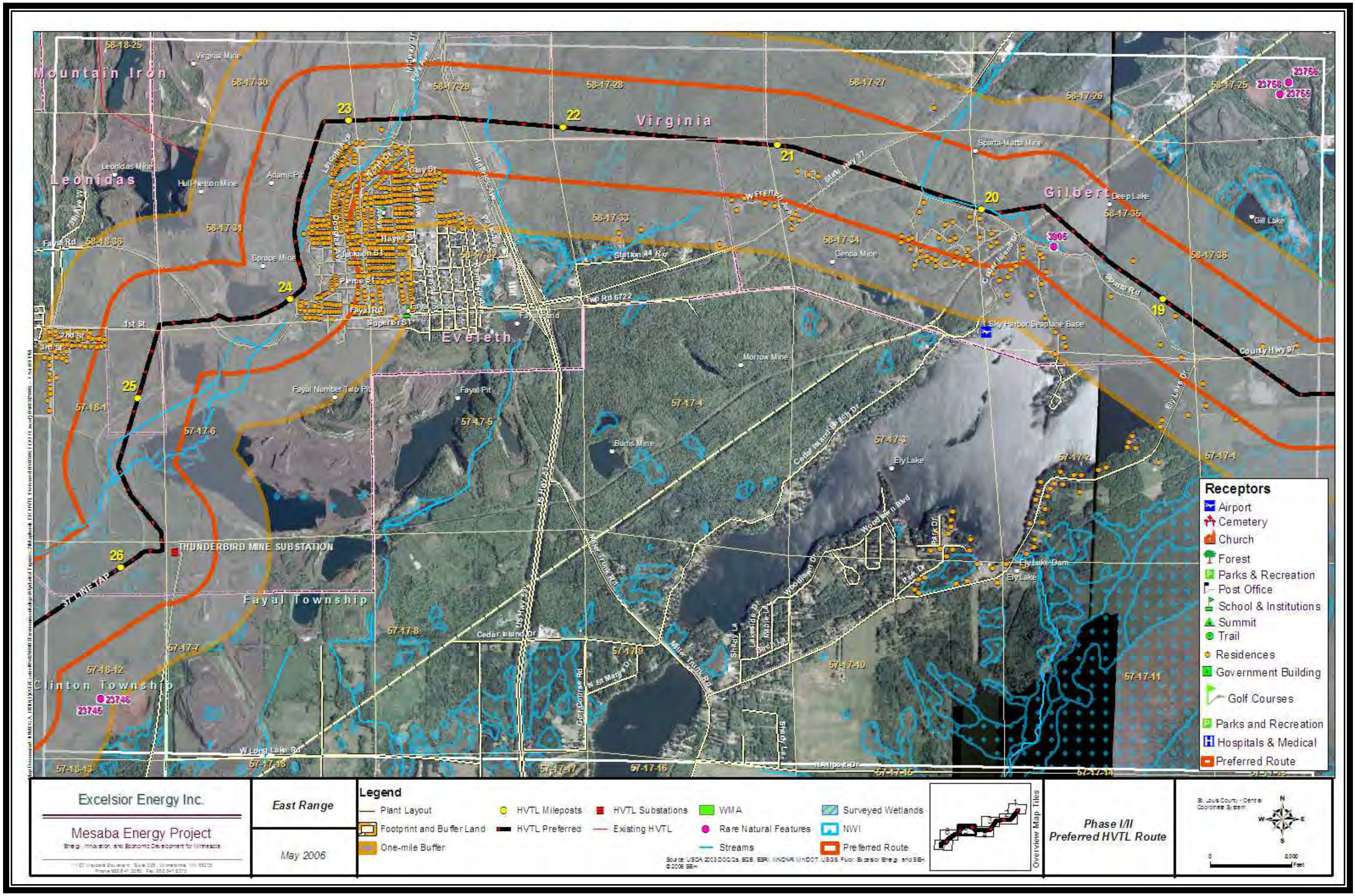

Figure 2.6-11 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 6

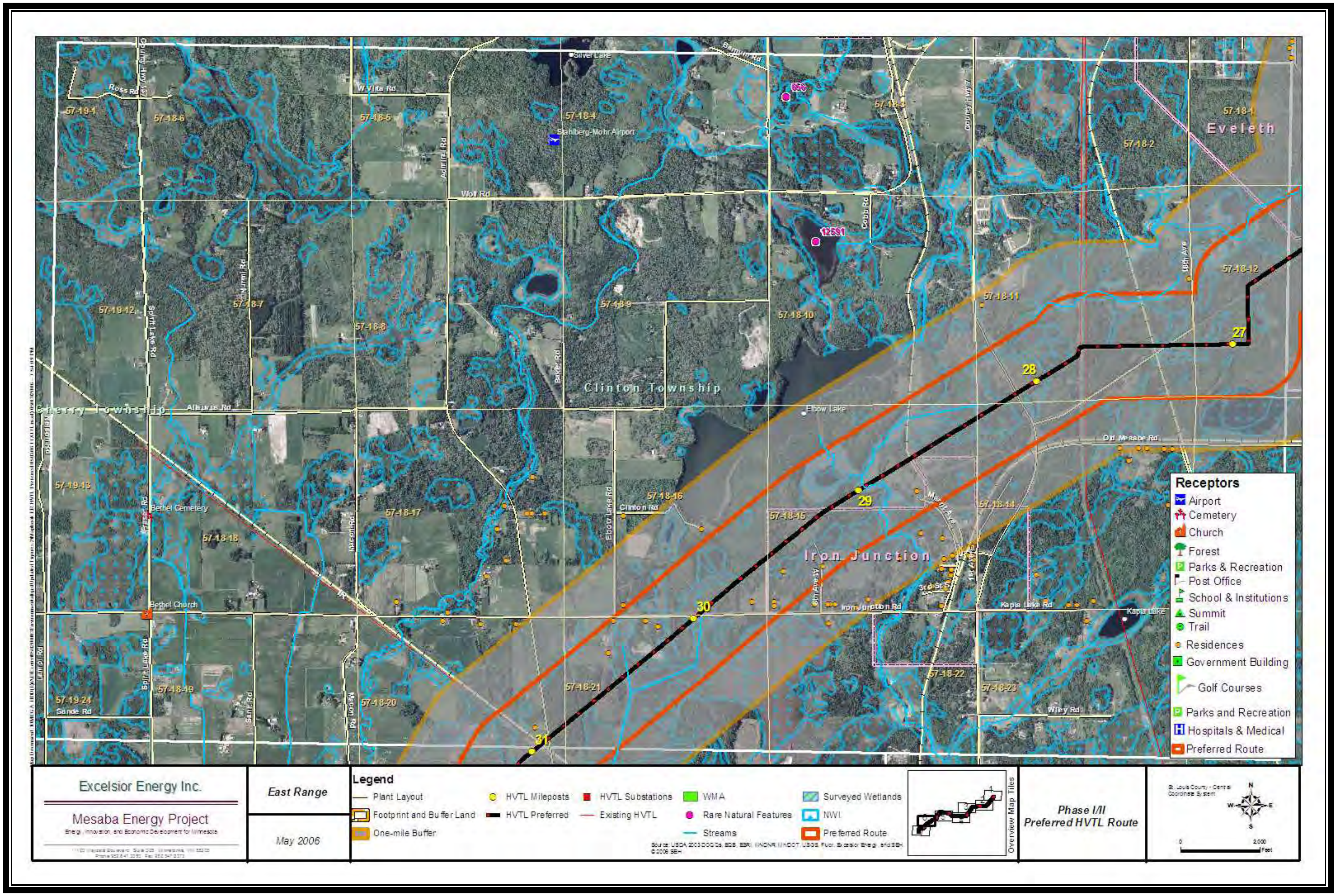

Figure 2.6-12 East Range Preferred HVTL Route 2 Along 39L/37L Route: Segment 7

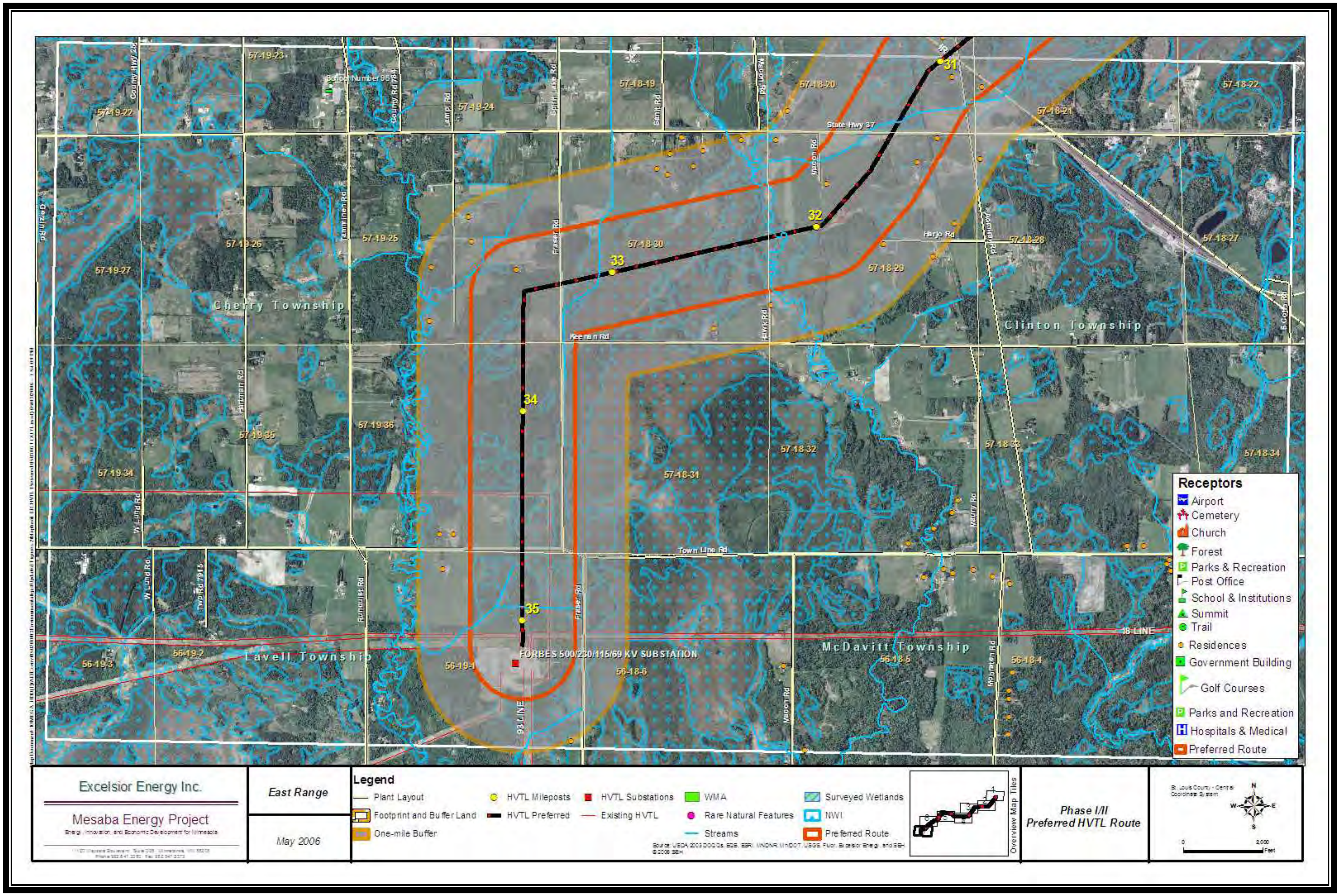

Figure 2.6-13 East Range Alternate HVTL Route 1 Along 38L Route: Segment 1